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ADDRESS

TO THE

ESSEX AGRICULTURAL SOCIETY.

MAY 5, 1818.

BY THE HON. TIMOTHY PICKERING.

PRESIDENT OF THE SOCIETY.

SALEM:
PRINTED BY THOMAS C. CUSHING.
1818.

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ADVERTISEMENT.

The Essex Agricultural Society, to whom, in the necessary absence of the writer, the following address was presented, having desired that it might be published, he thinks it proper to say, that, proposing to offer for consideration some useful facts and observations having a direct relation to the great object of the association—an improved system of agriculture—he sought to exhibit them in plain and familiar language, adapted to the subject. Improvements important in their nature will be important in fact, in proportion to the extent to which they are introduced. Practical farmers must be satisfied of their reality, to be persuaded to adopt them. And they will be the sooner and better satisfied, if the accounts of improvements be given in language easy to be understood. Many words familiar to the scholar, are to the mere practical farmer "an unknown tongue." When words of art, not used in popular style, are unavoidably introduced into papers intended for his reading, a short note might explain their meaning.

The introduction of local words, used and understood only in some districts, probably cannot be wholly avoided; because those who use them are not always aware that they are local; but they embarrass the reader in another district. To agricultural gentlemen in Boston and its neighbourhood, so many "bucks" or "buck-loads" of manure, appear to be words familiarly known; yet probably were never heard in Essex. To an inquiry for their meaning, this answer was given: "A buck," or "buck-load," is the load drawn by one pair of oxen, and a "double buck" the load drawn by two pair of oxen.

To interest, in the important object of the institution, a class of citizens who are men of reading and science, the writer of

this address, had he been present at the late meeting of the society, intended to have proposed the inviting and declaring all the clergymen in the county to be members; but exempt from *pecuniary* contributions. Formerly, parsonages (like glebe lands in England) were provided for our clergy in the country; and their cultivation was necessarily to depend on the direction, and in some measure on the manual labour, of the incumbents—the clergy themselves. At this day, many clergymen, from the scantiness of their salaries, are required to imitate St. Paul, *working with their own hands, to minister to their necessities.* A great proportion of our clergy are the sons of farmers, and in early life were acquainted with the practice of husbandry. Its principles, as a branch of natural philosophy, cannot fail to interest them. And were their attention drawn to the subject, it would be in their power easily to obviate the complaint so often made—*That practical farmers cannot be persuaded to communicate to the public* (*through agricultural societies, or otherwise*) *their successful improvements.* Unaccustomed to write, they naturally shrink from the task. But it would not cost clergymen much time to make themselves acquainted with every improvement in husbandry among their parishioners; nor much labour to describe and communicate them for publication. And I cannot suppose that such attentions would render them less acceptable to their people; while they would tend to give efficacy to their prayers, that "the earth yield her increase." "God helps them that help themselves."

To the Essex Agricultural Society.

GENTLEMEN,

HAVING ſuggeſted to the Truſtees, at their late meeting, the expediency of preparing ſome propoſitions to be ſubmitted to the Society at its adjourned meeting; by whom, ſo far as they appeared to embrace uſeful objects and ideas tending to the improvement of our Agriculture, they might be recommended to the attention of farmers; and the Truſtees thinking this might be done conveniently in the form of an Addreſs, I conſented, at their requeſt, to throw upon paper my views of ſuch articles of huſbandry as ſhould ſeem proper to engage the attention of the Society, at the commencement of its operations.

I ſhall preſent my obſervations under the heads of Manure—Domeſtic Animals, or the Live Stock of a farm—Green Food, comprehending Carrots, the Great Beet, or Mangel Wurtzel, the Swediſh Turnip, and Indian Corn plants, while abounding in ſweet juices—Ripened Indian Corn—and Wheat.

I wave all remarks on the importance of the ſubject of our inſtitution: that is univerſally acknowledged. How, indeed, are we fed, clothed and warmed? By the productions of the earth. How ſhall theſe be rendered abundant? and moſt abundant? to ſubſiſt greater numbers than now depend on them?—By improvements in Agriculture, taking this word in its largeſt ſenſe, and comprehending every object meriting the attention of the huſbandman.

MANURE.

New-Lands, cleared of their trees, and the bruſh and rubbiſh burnt on the ground, yield a number of crops without other manure. But in Eſſex, there is, I preſume, no land of this ſort. All our farmers, therefore, depend on common manure for crops that will reimburſe the expenſe of their culture. But the quantity of manure ariſing within their farms, is extremely limited, and wholly inadequate to their wants. And as "dung is all in all," * it is of the higheſt intereſt to every farmer, firſt to huſband what he has, and next to conſider how he may increaſe the quantity.

It is ſeventeen years ſince, riding from Boſton into the country with a friend, and paſſing a farm conſiſting, on one hand, of gentle hills, and on the other of a *plain*, to which latter part great quantities of manure had been applied, but which produced only a very tranſient fertility;—"*That* (he remarked) is good land—*this* (the plain) is riddle land." After we had parted, his expreſſion, "riddle land," occurred to me. "And what (putting the queſtion to myſelf) is riddle land?" That which is of ſo open and looſe a texture as to let the rain falling on it paſs through it, as water poured into a riddle or ſieve, and carrying down with it the eſſence of the manure below the roots of plants for whoſe nouriſhment it is applied. But is it true, that on ſuch land, or on any land, the fertilizing parts of manure eſcape by ſinking beyond the reach of plants? If they do, how happens it, that in lands which have been cultivated and manured for ages, every layer of earth

* A remark long ſince made, I think by Arthur Young, a celebrated English writer on husbandry; comprehending litter and all other materials uſefully mingled with the dung and urine of animals.

below the cultivated ſoil is, nevertheleſs, found dead and barren? Is it not for this reaſon, that farmers in general cautiouſly avoid ploughing deeper than the ſoil, left by ſtirring that dead earth, and mixing it with the ſoil, they ſhould leſſen its fertility? The reſult of a little experiment which I had made prior to our revolution then occurred to me. Its recital may in ſome other reſpects be uſeful.

Within a ſtone's throw of my father's houſe, was a piece of ſandy loam, which from its contiguity to the dwelling-place of himſelf and anceſtors, for upwards of a hundred and thirty years, muſt have been kept, a large portion of that time, in tillage, and conſequently have been often manured. Yet the coloured ſoil was no more than five or ſix inches in depth. This ſoil I removed from one ſpot, with three or four inches of the earth next beneath it. Of the next, red earth, I then took up as much as meaſured a peck and a half. Dividing a long box into two equal portions by a board, into one I put a peck of the red earth; and into the other a half peck, intimately mingled and incorporated with half a peck of clay—perfect clay to the touch; but it was taken from the edge of a clay-pit holding water, where cattle often drank, and a flock of geeſe bathed, during the ſummer. Hence the apparent clay was doubtleſs impregnated, in ſome degree, with the droppings from theſe animals. This box I placed, on the ſurface, in a garden. Adjacent to it, I ſunk, to a level with the ſurface, a ſmall earthen pot filled with the ſame ſort of clay. In theſe three places I ſowed turnip ſeed, as late as the 20th of Auguſt. In a few days I reduced the number of turnip plants in each to three. The pot of clay, even with the ſurface, received ſufficient water from rains: but I regularly watered the parcels of earth in the box;

beſtowing equal quantities, and at the ſame times, on each diviſion. Near the cloſe of October, I carefully took up the turnips, and waſhed them, leaving upon them the fibrous roots and leaves. The three which had grown in the pot of clay weighed ten ounces—the bulbs hot to the taſte, ſtringy and tough. The three from the dead red earth weighed only three ounces, and the bulbs were ſoft, ſpungy and inſipid. But the three which had grown in the mingled red earth and clay weighed twenty-four ounces, and the bulbs were of good texture, and well flavoured.

From the facts above ſtated, I felt authorized to infer, that all the loſt manure, (that is, all the parts not imbibed by the roots of plants, nor remaining in the ſoil) inſtead of *ſinking* below the ſphere of vegetation, *roſe* into the atmoſphere: and that "riddle land," (land on which the effects of manure were not laſting) however highly manured, ſo ſoon loſt its fertility, not by letting the eſſence of the manure *ſink* ſpeedily through it, but by its *incapacity to retain it againſt the power of evaporation.*

My own practice, ſince, has been conformed to this concluſion; diligently ploughing in all manure as ſoon as ſpread; even ſo far as to ſpread in the morning no more than could be ploughed in before the hour of dining; and while the cattle were eating, to ſpread only ſo much more as they could plough in by night.

Lands kept conſtantly in paſture ſhow how little benefit is derived from dung as dropped from the animals depaſtured. That of horſes, though in lumps two or three inches thick, very ſlightly enriches the ſpot where it lies; and that of oxen and cows, lying from one to two inches thick, has no conſiderable effect. Whereas dung which is ſpread and immedi-

ately ploughed in, and in the courſe of cultivation is well mixed with the ſoil, will produce ſeveral good crops—more or fewer according to the quantity applied, and the nature of the ſoil. Twenty loads of winter-made dung, of neat cattle, in which there is commonly very little ſtraw or other litter, each load filling the body of a cart drawn from the dung-heap to the field, by one pair of good oxen, would be conſidered as a pretty good allowance of manure for an acre; yet, if evenly and cloſely ſpread, it would form a cover but a little more than a quarter of an inch thick. Were this thin cover to remain on the ſurface, expoſed to the ſun and air, I ſhould doubt whether its effects would be viſible much beyond the crop of the year: although if ploughed in as ſoon as applied, the crops of four or five years would be manifeſtly improved. I am induced to think the ſpreading of dung on graſs land, the moſt waſteful way in which it can be uſed. Only one exception occurs to me: where a meadow well laid down in good graſs lies ſo low, and is ſo moiſt, as to render it improper to break it up.

I take the opinion to be general, that manure when ploughed in cannot be kept two near the ſurface; on the common idea that its eſſence will be diſſolved and carried down by rains below the reach of cultivated plants: but if the above theory be correct, this notion is wholly unfounded.

So extremely minute are the mouths and veſſels of plants, that the nouriſhing parts of manure can enter them only in a ſtate of diſſolution by water. This element, ſupplied by rain, or otherwiſe, to the earth, during the ſeaſon of vegetation, is, in a regular courſe, aſcending. The eſſence of manures aſcends with it, and the portion not intercepted by the roots of plants, eſcapes into the air.

Another conſideration forbids me to think that manures are loſt by their valuable portion ſinking beyond the reach of plants, as it would then be forever loſt, and the means of renewing vegetable and conſequently animal life be ſo far diminiſhed: a reſult which would ſeem to derogate from the frugal and admired economy of nature. Whereas, what riſes into the atmoſphere, though loſt to the individuals who omit the proper means to retain it, is not loſt to the globe: the air contributing its ſtores to promote the growth of plants.

From theſe conſiderations, the inference ſeems obvious, that manure ariſing from dung, and from all animal and vegetable ſubſtances, ſhould be expoſed as little as poſſible to the ſun, the air and waſhing rains; and when applied to the ſoil, be immediately ploughed in. And further, that the aim of the huſbandman, poſſeſſing a ſoil from which the eſſence of his manure ſoon eſcapes, ſhould be to add ſomething which will render it more tenacious; like the ſoil which, in current language, is ſaid "to hold manure well." For this purpoſe, nothing, probably, is equal to clay. Were a bank of clay in my own farm, I ſhould deem it a treaſure: becauſe, ſubſtantially to meliorate ſuch a ſoil, ſo large a quantity would be required as diſtant carriage would render too expenſive. Clay marle, were it attainable, would be ſtill more valuable; becauſe it would at the ſame time ſupply a ſubſtance, without which, a diſtinguiſhed Britiſh writer,* and in early life a practical farmer, pronounces, that ſoils cannot attain their higheſt degree of fertility. That ſubſtance is calcarious, or of the nature of lime; being the mouldered or mouldering ſhells of animals bred in water. Where limeſtone is wanting, oyſter

* The late Dr. James Anderson.

ſhells are often burnt for lime. It has ſeemed to have been the popular idea, in this country, that marle was merely a very fine, rich earth: but without calcareous matter mingled with it, there can be no marle.

But however correct and economical may be the manner of ſaving and applying manure, the quantity ſtill falls vaſtly ſhort of the farmer's wants. How to ſupply the deficiency merits the deepeſt attention of the Society. Dr. Elliot, a highly reſpectable clergyman of Connecticut, who ſeventy years ago wrote Eſſays on Field Huſbandry, tried this method: In the road he made a pen, long in proportion to its width, in which he confined his cows every night during the ſummer; and once a month, taking down the end fences, ploughed up the pen. By this proceſs, he remarks, "the furrow depth of earth was become dung," and when applied to graſs and corn appeared to equal other dung in its effects.

A gentleman of Virginia, one of the greateſt and moſt ſcientific farmers in the United States,* recommends, from his own experience of its benefits, the nightly penning of cattle during the ſummer. But to prevent loſs by evaporation, he, at the end of every two weeks at fartheſt, ſhifts his fence, and forms a new pen; and immediately ſecures the riches of the former, by a ſingle ploughing. One hundred head of ordinary cattle, of the ages common when raiſed on the farm, and as many ſheep, he ſays, will in this way manure eighteen acres annually, ſufficiently to produce fine crops of Indian Corn and Wheat, followed by clover. This plan, however, is impracticable on the ſmall farms of Eſſex. Nor is Dr. Elliot's mode, of forming pens by the ſides of

* Col. John Taylor, of Caroline county.

the highways, admiſſible here. A ſubſtitute, adapted to our ſmall farms, may perhaps be obtained in this way:—As ſoon as all the manure is removed from the barn yard, in the ſpring, carry into it any kind of earth moſt eaſily attainable, and cover it two or three inches thick. At the end of every two weeks [better if done weekly—but this might be thought too minute and troubleſome] add another cover of an inch or two of earth By the laſt of September there would thus be collected a maſs of manure from eight to twelve inches thick, over the whole barn-yard. And while the dung and urine of the cattle would thus be in a good degree ſecured againſt loſs by evaporation, the cattle would always find (what they invariably ſeek for) a clean bed to lie on. If at the times for ſowing turnip ſeed, or winter rye, or wheat manure be wanting, it will be in the barn yard well prepared for thoſe purpoſes. A thin coat of ſtraw, or other litter, at the bottom, and a thin ſprinkling of it under every freſh layer of earth, might be uſeful to prevent the latter being trod into hard cakes; while it would abſorb a part of the urine, and be itſelf converted into good manure. The manure made by hogs in pens may be increaſed and preſerved in the ſame way, and by the addition of all the weeds and refuſe vegetables which can be collected.

LIVE-STOCK.

In order to encourage the procuring and propagating of improved breeds of cattle, ſheep and ſwine, the Truſtees of the State Society of Agriculture have inſtituted an annual ſhow of theſe animals, and given premiums for thoſe deemed the beſt. I view it as a valuable inſtitution. But, with great deference, I

would inquire, whether giving rewards for the *biggeſt* and the *fatteſt* is the beſt mode of obtaining the *moſt valuable* breeds. Bakewell, the Engliſh celebrated breeder of cattle, ſheep and ſwine, exerciſed his genius to produce ſuch as were excellent in form, of ſufficient ſize, which yielded the greateſt quantity of meat on the moſt valuable joints, and would grow and fatten on the ſmalleſt quantities of food. Theſe circumſtances will, I conceive, merit the attention of the Society, ſhould it hereafter have the means of beſtowing premiums of this ſort. In the fattening of cattle and ſheep, there is a point to be attained, at which their fleſh will be of the beſt quality, and moſt valuable to the conſumer. Is not all beyond this a waſte of time and expenſe in their keeping?

The quality of cows is highly intereſting to the farmer who makes butter and cheeſe. Some yield little of either, although giving much milk. And Dr. Anderſon mentions an inſtance of one cow from whoſe milk no butter could be made. She was purchaſed of a farmer who kept a large dairy, by a perſon who had no other cow; and thus the diſcovery was made. Thrown into the general maſs, her milk had been uſeleſs, and her keeping a dead loſs to the farmer. Hence the Doctor judiciouſly recommends the ſetting, in a ſeparate pan, the milk of every cow, to aſcertain its quality; that ſuch as give meagre milk may be fattened and ſent to the ſlaughter-houſe. This experiment will aſſiſt the farmer in ſelecting the cows moſt proper to be the parents of his future ſtock. Cows which, in equal times, make fatter calves than others, may be preſumed to give richer milk, or greater quantities of a good quality; and the calves of ſuch cows may be raiſed with a fair proſpect of obtaining an improved breed.

I had often ſeen deſcriptive marks for a good cow; ſome appearing rational, others fanciful. I once aſked an obſerving neighbour, what marks determined his choice. "I look (ſaid he) to the bag—if that be large, *and the teats far apart*, I am ſatisfied." I was ſtruck with this anſwer. A cow's bag conſiſts of four lobes, or dugs. If theſe are large, the entire bag will be large, and the teats far aſunder. After the famous Oakes cow had obtained the premium at the Cattle Show of 1816, I went purpoſely to ſee her. On approaching near enough, I looked to her bag and teats. Theſe were farther aſunder than thoſe of any cow I had ever ſeen; and her bag, of courſe, was of an extraordinary ſize. But her milk alſo was uncommonly rich. Mr. Oakes told me the veal of her calves had always been unuſually fat. Mr. Oakes, not being a farmer, had not raiſed any of them. Probably the like diſpoſition to fatten (depending, doubtleſs, as well on the offspring as on the dams) has thrown into the butcher's hands many fine calves and lambs which ought to have been ſaved as the ſureſt means of obtaining the moſt valuable ſtock. Bakewell's wonderful improvements in live-ſtock were effected by his always ſelecting and keeping the beſt for breeders.

GREEN FOOD.

There are ſome plants little known, and others whoſe culture may be greatly extended, much to the advantage of the farmers in Eſſex, in feeding their ſtock.

Carrots.—Without making accurate experiments, it has ſeemed to me that the ſame land will produce a much greater quantity of carrots than of potatoes: and I as little doubt their ſuperior value in feeding

every kind of live-ſtock. The moſt diſheartening objection to their extenſive cultivation, probably ariſes from the myriads of weeds which ſpring up with, and almoſt ſmother, the carrots, ſmall and feeble at their firſt appearance. To obviate this difficulty, the ground intended for carrots, being well manured, ſhould firſt be planted with ſome crop (as Indian corn or potatoes) which, during its growth, may be eaſily weeded, chiefly with the plough and hoe; frequently uſing both, to encourage the vegetation of the ſeeds of weeds, for the purpoſe of deſtroying them; and by all means preventing any weeds ripening their ſeeds. The next year the weeds will be comparatively few, and the culture of the carrots eaſy.

The ſeeds of the carrot being furniſhed with beards, they do not eaſily ſeparate in ſowing. Rub the quantity propoſed to be ſown, with the hands, until the beards come off (a thing of no difficulty) and they may be ſown by the thumb and finger as expeditiouſly as any other ſeed. Thus prepared and winnowed, they are ſmooth enough to paſs through a drilling machine. But if a piece of land in fine tilth be thrown, by the plough, into ridges, or beds, one quarter of a rod in width, (from the centre of one to the centre of another) and harrowed ſmooth, and two ſmall drills, or channels, ten inches apart, be made on each bed (by an inſtrument like a rake, but ſet with only two large wedge-ſhaped teeth) which a man will do on a moderate walk—another man can ſow, and by hand, at the rate of an acre in four hours. I ſpeak with certainty, having made the experiment. But cultivated on a large ſcale, carrot ſeed ſhould be drilled by the inſtrument made for the purpoſe.

The carrot in the field is a much hardier plant than the potato; and, ſo far as my experience goes, the roots are at leaſt as eaſily preſerved in the winter. The Truſtees of the State Society decreed a premium to the perſon who laſt year raiſed the greateſt quantity on an acre, being eighteen tons; which, at 40 buſhels per ton, would be 720 buſhels per acre.

The Great Beet This plant is better known by its German name of Mangel Wurtzel. I laſt year raiſed about half a ton. Its cultivation, on good and clean land, is eaſy, and its produce great. On ſtrong lands in England, forty tons to the acre is not an unuſual crop. A parcel of the ſeed will be preſented to the Society, to be diſtributed to the members who deſire to become acquainted with the plant. Its ſeed is not diſtinguiſhable from that of the common beet; and, in a ſmall experiment, its culture may be the ſame. If room be allowed them, they will grow to three or four, and upwards to eight or ten, pounds in weight. The field management of this plant, in England, is well known; and may hereafter be communicated, ſhould its cultivation be extended. When full grown, the roots will be found with more than half their bulk above ground. Being thus expoſed to froſt, and leſs hardy than the carrot, they require a more early harveſting; for which no digging is required. When once taſted by horſes, cattle, ſheep and ſwine, they are greedily eaten; eſpecially by cattle.

The Swediſh Turnip is now much cultivated in England, where, in good huſbandry, they yield thirty tons to the acre; ſome times I think the crops riſe to forty tons. Sixteen years ago I raiſed a few: but the land was too poor, and the ſeed ſown too late. To raiſe them to advantage, the land muſt be in good heart, and the ſeed ſown *here* as early as May.

The Swediſh is a more hardy plant, and a much richer food, than the common turnip.

INDIAN CORN.

The great damage ſuſtained by Indian corn in 1812, and its almoſt general deſtruction in 1816, ſeemed to have produced, in ſome perſons, a degree of deſpondency reſpecting the cultivation, in future, of this moſt excellent plant; and perhaps prompted or increaſed the deſire in others, that wheat might take its place. I was not apprehenſive, however, that practical farmers would yield their long experience to fond ſpeculations on this ſubject. Yet it may not be amiſs to preſent to the Society the opinions of a few eminent agriculturaliſts, of the great value of this plant.

Colonel John Taylor of Virginia (whom I have already mentioned) when he commenced farmer—perhaps thirty years ago—joined with others in execrating Indian corn *as the murderer of their lands:* but his experience on an extenſive ſcale (planting two to three hundred acres annually) has induced him to change his opinion; and not only to pronounce its acquittal, but to add, that "Indian corn produces more food for man, beaſt, and the earth, than any other farinaceous plant." Again he ſays, "Indian corn may be correctly called meal, meadow and manure. To its right to the firſt title almoſt every tongue in the United States can teſtify; to the ſecond, an excluſive reliance on it for fodder, or hay, in a great diſtrict of country, during two centuries,*

* Prior to the American Revolution, grass for hay was rarely cultivated in Virginia. Their winter fodder consisted of the top-stalks, husks and blades of Indian corn. The blades, or leaves, stripped off when green, were carefully cured, as we do our best hay,

gives concluſive evidence;" and his own experience eſtabliſhes its title to the third.* His principal material for manure, is the offal of Indian corn. But his ſyſtem of huſbandry embraces many contributory articles, among which clover and gypſum [plaiſter of Paris] are conſpicuous. Tobacco, wheat, Indian corn, in that order of ſucceſſion, and all without manuring, had formerly exhauſted the lands in Virginia and Maryland; ſo that ten buſhels of corn to the acre was probably a full average crop.† By his admirable ſyſtem, Col. Taylor has reſtored much of his land to ſuch a degree of fertility, that within the laſt four or five years, "one field of two hundred acres produced a crop of Indian corn averaging fifty buſhels an acre." But he alſo raiſes great quantities of wheat. Mentioning Indian corn and wheat, he ſays—"No two crops can be ſo exactly fitted for advancing a good ſyſtem of agriculture."

The late Chancellor Livingſton of New-York, alſo a diſtinguiſhed agriculturiſt, in an addreſs to the Agricultural Society of that ſtate, in which he compared the advantages of agriculture in Great Britain and in the United States, pronounced (as Col. Taylor has ſince done) that Britain poſſeſſes no plant for a fallow crop, equal to Indian corn. But to this point, and to the general excellence of Indian corn, I add the teſtimony of an Engliſhman, of an enlightened mind, and who has devoted a long life to the ſtudy and practice of agriculture. I mean the well known Arthur Young. He has been for ſome years ſecretary to the Engliſh Board of Agriculture.

* Col. Taylor's Arator, titles, Manure and Indian Corn.

† Within fifteen years I saw some small fields, as I approached the city of Washington, which some of my fellow travellers, practical farmers, estimated at only five bushels to an acre.

Mr. Young, in his travels in France, in 1787, 1788, and 1789, in which time he viſited every intereſting part of the kingdom, for the purpoſe of obſerving the ſtate of its agriculture, mentions the cultivation of Indian corn (there called maize) in its ſouthern provinces. "Maize (ſays he) is an object of much greater conſequence than mulberries.* When I give the courſes of French crops, it will be found, that *the only good husbandry in the kingdom* (ſome ſmall and very rich diſtricts excepted) *ariſes from the poſſeſſion and management of this plant.* Where there is no maize, there are fallows [naked fallows;] and where there are fallows, the people ſtarve." Volume ii. page 41. Again, in page 140, he ſays—"The line of maize may be ſaid to be the diviſion between the *good* huſbandry of the ſouth, and the *bad* huſbandry of the north, of the kingdom. Till you meet with maize, very rich ſoils are fallowed, but never after. *Perhaps it is the moſt important plant that can be introduced into the agriculture of any country whoſe climate will ſuit it.*"†—"A country whoſe ſoil and climate admit the courſe of 1ſt maize, 2d wheat, is under a cultivation, that, perhaps, yields moſt food for man and beaſt, that is poſſible to be drawn from the land."—In the ſame page, Mr. Young ſays, that in the ſouth of France, in Spain, in Italy, the cattle are in high order; which he aſcribes to the food afforded by Indian corn; as it furniſhes "a rich meadow a conſiderable part of the ſummer; the leaves being regularly ſtripped for oxen, affording a ſucculent and moſt fattening food—in ſituations that ſeem

* Mulberry trees are grown for the feeding of silk-worms.

† Although the climate of England is milder than our own, the heat of ſummer is inſufficient to ripen Indian corn.

to deny all common meadows." Theſe are burnt up, in thoſe countries, in the heat of ſummer.

The improving of our huſbandry, in New-England, is to be expected, not from a rejection of Indian corn, as the ruin of our lands, but by a better management of that crop, in order to render it, as it appears it may be rendered, the beſt preparation for a crop of wheat, and other ſmall grain.

Every farmer knows how eagerly cattle devour the entire plant of Indian corn in its green ſtate; and land in good condition will produce heavy crops of it. Some years ago, juſt when the ears were in the milk, I cut cloſe to the ground the plants growing on a meaſured ſpace, equal, as I judged, to the average product of the whole piece; and found that, at the ſame rate, an acre would yield twelve tons of green fodder; probably a richer and more nouriſhing food than any other known to the huſbandman. And this quantity was the growth of leſs than four months. The ground was rich, and yielded, at harveſt, upwards of fifty buſhels of corn to the acre. The green ſtalks of our northern corn are incomparably ſweeter than thoſe of the ſouthern ſtates; at leaſt when both ſorts are grown in the north. Perhaps the greater and longer continued heats of the ſouth may give a richneſs to the ſame large plants which theſe cannot attain in the north. The ſtalks I have grown, roſe to the height of 13 or 14 feet, and many of them weighed above five pounds. To ſupport this height, they are neceſſarily thick, and woody in their fibres. My cows ate a ſmall part of them—reluctantly—while they would devour the ſtalks of our northern corn. It has appeared to me that the ſort called *ſweet corn* (having a white ſhrivelled grain when ripe) yields ſtalks of richer juice

than the common yellow corn. It is alſo more diſpoſed to multiply ſuckers,—an additional recommendation of it, when planted to be cut, in its green ſtate, for horſes and cattle, and eſpecially for milch cows; and its time of planting may be ſo regulated as to furniſh a ſupply of food, juſt when the common paſtures uſually fail. I am inclined to doubt whether any other green food will afford butter of equal excellence.

WHEAT.

Although no idea appears to me more viſionary than that "New-England could furniſh bread-ſtuff for the whole of the United States;" yet I am ready to believe that her huſbandry may be ſo improved as to render her independent of the ſouthern ſtates, for every ſpecies of bread of common conſumption. I ſay of *common conſumption;* becauſe even New-York, an exporter of wheat and flour, imports Richmond flour for uſe in her cities; becauſe Virginian wheat makes whiter flour, and of a ſuperiour quality to her own.

I have ſcarcely ſeen or heard of any ſpring wheat grown on the ſea-board of old Maſſachuſetts or New-Hampſhire, that has not been more or leſs infected with ſmut; ſo as generally to require waſhing to fit it for bread. Some Spaniſh wheat lately cultivated by Nathaniel Gilman, Eſq. of Exeter, is the only exception. This is a wheat of ſingular excellence; and hitherto, Mr. Gilman informed me, has been perfectly exempt from ſmut and mildew. The ſize of the grains, and their weight by the buſhel, are moſt extraordinary—the latter riſing (if I miſtake not) to 67 or 70 pounds. In the laſt year, he ſup-

poſed one hundred buſhels were raiſed in Exeter. All proceeded from a ſingle ear which an American ſailor plucked in a field near Malaga, and brought to Exeter. It fortunately fell into Mr. Gilman's hands, by whoſe attention its product has been thus increaſed.

In the Diſtrict of Maine, eſpecially by the aid of its new lands, probably much more wheat will be grown than will be required for its own conſumption: its climate being better adapted to the growing of ſmall grain than of Indian corn: although I ſhould think the ſmall Canada corn might ſucceed in all but the more northern parts, or where the ſoil is clayey and cold. In ſome parts of New-York, eaſtward of Albany, where at the firſt clearing off the wood fine crops of wheat were grown, they now ſuffer extremely, or fail. The ſoil is clayey—heaved by the winter's froſts, by which, and alternate thaws, the roots of the wheat are gradually thrown out, and the plants periſh. Such was the information given me by a farmer reſident there. While the land was freſh, enriched and warmed by the coat of vegetable manure which for ages had been accumulating on its ſurface, the wheat was exempt from this diſaſter. The abundant manures attainable by a greatly improved ſyſtem of huſbandry, may leſſen or prevent the continuance of the evil.

WINTER WHEAT.

For a year or two after the purchaſe of my little farm, I eſſayed the culture of barley and wheat: but finding the ground infeſted with the ſeeds of annual weeds which ſprung up with ſpring-ſown grains,

and nearly choaked them, I gave over the purſuit, until the condition of the land ſhould be changed; growing only a little wheat, rather by way of experiment than for a crop.

Winter rye ſown early I found ſucceeded very well. The annual weeds which afterwards vegetated, had not time to ripen their ſeeds. The rye-plants got poſſeſſion of the ground, and ſubſtantially maintained it until the enſuing harveſt This induced a deſire to try winter wheat; hoping that, by the like early ſowing, it might eſcape mildew as well as early ſown winter rye. And as the Virginian white wheat was ſaid to ripen a fortnight earlier than other kinds, I concluded, if it would ſtand our winter's cold, it would be in little hazard from mildew—the formidable evil which, it was underſtood, had cauſed the growing of winter wheat, in this part of the ſtate, to be long ſince abandoned. I procured enough for the experiment. It was ſown in drills, that it might be kept perfectly clean. It flouriſhed admirably during the autumn; and not a blade was hurt by a ſmart froſt about the middle of November: but in the following ſpring, not a ſingle plant was alive.

I intended to renew the attempt with ſome winter wheat growing farther north; and yet neglected it until the laſt year, when I procured a ſmall parcel which had grown in New-Haven. Half of this I gave away, for an experiment to be made in the county of Worceſter. The reſidue I deſigned to ſow in Auguſt, at the time of ſowing my winter rye. It was put in on the 22d: but I was neceſſarily abſent, and ſpace enough was not left for the whole. The remainder was ſown the 10th of September; the whole in rows, to admit the hoe, to

keep it clean from weeds. Both parcels look well, and begin to ſhoot into ſtems. Not a plant appears to have been hurt by the hard froſts of the laſt winter.

Whether we ſhall cultivate winter or ſpring wheat, or both, I preſume no farmer will remain unconvinced, that it will be not only compatible with the continuance of our Indian corn crops, but that the latter are the beſt preparative for the former. There is certainly much labour in dunging and planting in holes for Indian corn; and ſo there is equally for potatoes. In Great-Britain and Ireland, they perform an equally hard taſk, for potatoes; they plant them in continued rows, not more than three feet apart; and place the manure in the whole length of the furrow opened for its reception. So likewiſe in England and Scotland, the farmers who grow the large quantities of mangel wurtzel and Swediſh turnips before mentioned, ſow the ſeeds in drills, under which, in furrows opened for the purpoſe, the manure has previouſly been ſtrewed. And theſe rows are only twenty-ſeven inches aſunder; a diſtance at which they find the greateſt crops are attained. This laborious diſtribution of the manure, preciſely under the rows of the plants to be grown, would ſeem to be the reſult of their experience, or general opinion, of its greater economy, in the application of that eſſential ſubſtance. And here I may remark, that on the principle firſt diſcuſſed, reſpecting manure, this economical practice of the Britiſh farmers would ſeem to be well founded. For the eſſence of manure, combined with the water in the earth, which the ſun's heat and the air are continually exhaling and attracting, cannot fail, in its aſcent, to meet more of the roots of plants *to ſuck it in*, than if the manure

were ſpread over the whole ſurface of the ground, and then ploughed in; through which whole ſpace that eſſence would equally aſcend and eſcape, by evaporation; and conſequently where no cultivated plants, at leaſt in the firſt ſtages of their growth, ſent out roots ſufficient to intercept its flight. When the ſame ground is afterwards to be laid down with grain and graſs ſeeds, two ploughings and harrowings, at leaſt, ſhould be given, if it were only to ſpread evenly, and thoroughly mix with the ſoil, the manure applied in holes or drills during the cultivation of the tilled or fallow crops. And in Great Britain, ſuch fallow crops are deemed eſſential to good huſbandry.* It is a maxim there, among the moſt in-

* The substituting of fallow-crops for naked fallows is one of the capital improvements in English husbandry. The naked fallow, formerly in universal practice, consisted in repeatedly ploughing the land from spring to autumn—with two objects in view: one, the destruction of weeds, with which their lands became foul by repeatedly cropping them with small grain, as wheat, barley, oats, rye, in immediate succession; for the weeds springing up with these crops, and ripening their seeds, the soil, in three or four years, was so amply stocked, that some mode of extirpating the weeds became indispensable. But for many ages, no other than naked fallows seem to have occurred. The English farmers now grow fallow crops, selected according to the nature of their soils; as beans, carrots, turnips, potatoes, mangel wurtzel, cabbages. While these are growing, they *fallow* the ground; that is, they stir it repeatedly with the plough or hoe, or both; by which they as effectually destroy the weeds as by the naked fallow; and at the same time benefit their crops, whose products reward them for their labour.

Naked fallows seem also formerly to have been considered as the means of *enriching* as well as of cleaning the land. The error of their practice, in this view, cannot be better illustrated than by the following fact, communicated above thirty years ago to the Philadelphia Society of Agriculture, when I was a resident member, and which I well recollect. But to prevent circumstantial errors in the recital, I have turned to the Notes on Husbandry, by Mr. Bordley, (who was the vice-president of the society,) where the case is stated.

A gentleman of Maryland (Mr. Singleton of Talbot) ploughed up part (and this was the richest part) of a clover field, in March, intending to plant it with tobacco. It happened, however, that the tobacco crop was omitted. So this part was *fallowed*, that is, it was repeatedly ploughed in the summer, and on the first of September, sown with wheat. The residue of the clover field was twice mown. In August it was *once* ploughed, and on the same first of September sown with wheat. At harvest, the fallowed

telligent farmers, never to put in two white crops in immediate ſucceſſion. "White crops" are what in New-England we mean by the words "Engliſh grain;" as wheat, barley, rye, oats. All theſe, in England, are called *corn*, though wheat ſeems more eminently to be ſo deſignated. Our firſt American anceſtors, uſed to this application of the word *corn*, and finding here, among the Indians, a new farinaceous (meal-producing) grain which could be ground and made into bread, like the *Engliſh* corns, called it, by way of diſtinction, *Indian* corn.

The very extended modern improvements in the agriculture of Great Britain have been effected principally by the adoption of the beſt practices of different diſtricts, in others where they were before unknown. Theſe have been communicated by intelligent gentlemen, who viſited the principal parts of the kingdom, for the purpoſe of acquiring a knowledge of their various huſbandry; and eſpecially by the correſpondents of the Board of Agriculture, from all or nearly all the counties, giving the ſtate of agriculture in each. Their numerous agricultural ſocieties have alſo materially contributed to produce the ſame beneficial effects. Similar advantages may be hoped for, from the like inſtitutions in our own country. The utility of ours in Eſſex will greatly

part of the field yielded only 14 and a half bushels to the acre. The other part, besides two crops of clover hay the preceding year, now gave 24 and a half bushels to the acre. This striking fact admits of an easy explanation, and in conformity with the principles already advanced. The repeated ploughings of the fallowed part of the field exposed the clover plants, roots and tops to the sun and air, by which they were dried up, and nearly annihilated; while other vegetable food in the soil was also dissipated, or greatly reduced, by evaporation. But the clover, turned under by a *single* ploughing, was completely covered with earth, kept moist, gradually rotted, and so supplied food to the wheat plants most plentifully when most wanted, that is, in the ensuing season, when the wheat was attaining its complete growth, and ripening the grain.

depend on the liberal communication, by our intelligent farmers, of their own ſucceſsful practices. From theſe it will be the buſineſs of the Truſtees to ſelect and publiſh, for the benefit of all, what may be but partially known.

I intended to have ſaid ſomething on the ſubject of wood for timber and for fuel, of which our lands in Eſſex are lamentably deficient, and in ſome parts nearly deſtitute: but I have not time to add to what may already be deemed too long. It is a ſubject, however, which particularly claims the attention of the Society, whoſe *primary* views will neceſſarily be directed to the improvement of the huſbandry of Eſſex.

May 5, 1818.

A

DISCOURSE,

READ BEFORE THE

ESSEX AGRICULTURAL SOCIETY,

IN MASSACHUSETTS,

FEBRUARY 21, 1820.

SUGGESTING SOME IMPROVEMENTS IN THE AGRICULTURE OF THE COUNTY.

BY TIMOTHY PICKERING,
PRESIDENT OF THE SOCIETY.

SALEM:
JOHN D. CUSHING, PRINTER
1820.

At a meeting of the Essex Agricultural Society, at Topsfield, February 21, 1820,

Voted, That the thanks of the Society be presented to the Hon. Timothy Pickering for his interesting Address, and that he be requested to furnish a copy thereof for publication.

Attest.

FREDERICK HOWES, *Secretary.*

DISCOURSE.

GENTLEMEN,

The Secretary has put into my hands a vote of the Society, requesting me "to make to it such communications as may in my opinion most conduce to the interest of Agriculture."

This was an unlooked-for request. I have myself much to learn from observing farmers, of longer experience, and whose attentions have been exclusively devoted to husbandry. Mine, since I became a farmer, have been diverted by other pursuits; so that at intervals only my thoughts have been turned to this subject.

No one doubts the importance of our profession: and the actual formation of our society is a declaration that improvements in it are necessary. But the Field of Agriculture is of boundless extent; and though traversed for some thousands of years by the greater portion of the human race, yet by no one, nor by all combined, has a complete survey been accomplished. Every year, and every day, presents something new: and even of old things, the practices of ages, there still exist diversities of opinions. For instance, which is preferable, deep or shallow ploughing?—Should manures be spread on the surface, or be buried by the plough? If the latter, at what depth, to produce the greatest effect, with the most lasting fertility?—Should manure be applied in its rough, coarse and unfermented state, or, by keeping and repeated turnings, be more or less rotted?—These are points which appear to me deeply to affect the interests of agriculture. On these therefore I will give you my opinion, enlightened by the observations of intelligent husbandmen. I will then advert to a few other topics which demand your attention; *dwelling* on one of them—Root-Crops for the Food of Live Stock—as lying at the foundation of an Improved Agriculture.

I. ON DEEP PLOUGHING AND MANURING.

For myself, I entertain no doubt of the utility of deep ploughing; not at once, in our lands in general, but by an increase of two or three inches at every annual ploughing, until the earth be stirred and pulverised to the depth of ten or twelve inches. Indian corn, planted in such a mass of loosened earth, would not, I am persuaded, ever suffer by ordinary droughts. Like a spunge, it would absorb a vast quantity of rain-water, and become a reservoir to supply the wants of that and of all other plants. Nothing is more common, in a dry summer, than the rolling of the leaves of corn; and that circumstance is often mentioned as an evidence of the severity of the drought. This rolling of the leaves of Indian corn, is the consequence, in part, of scant manuring, but still more of shallow ploughing. Few, perhaps, are aware of the depth to which the roots of plants will penetrate in a deeply loosened earth. A gentleman,* much inclined to agricultural inquiries and observations, informed me, near fifty years ago, that seeing some men digging a well, in a hollow place, planted with Indian corn, then at its full growth, he stopped to examine how far its roots had descended; and he traced them to the depth of nine feet. The soil was an accumulation of rich earth which had run or been thrown into the hollow.

The seed of the common turnip, sown in warm weather, and on a soil sufficiently moist, I have known to vegetate in about eight-and-forty hours; and in only four or five days afterwards, I found the plants had sent down roots to the depth of four or five inches.

I have often noticed forest trees blown down by violent winds, whose roots, of the same species, were very differently formed. Such as had grown in grounds having a hard, impenetrable pan of clayey gravel, at the depth of twelve or eighteen inches from the surface, exhibited a flat mass of roots; while others, torn up from a deep loam, or loamy gravel, showed downward roots of several feet in length.

* Peter Oliver, Esq. then a Judge of the Superior Court of Massachusetts.

About five months ago, I received from England a pamphlet written by one of the most distinguished agricultural writers in that country—Arthur Young. It was a lecture read, a few years before, to the British Board of Agriculture, of which Mr. Young was the Secretary. Its title is, "On the Husbandry of Three Celebrated British Farmers, Messrs. Bakewell, Arbuthnot and Ducket,"—all eminent for genius, enterprise, application, and long experience. It was to do honour to their memories, "and to bring to recollection the means by which those celebrated practitioners, in the first and most important of all arts, carried their agriculture to a perfection unknown before," that the lecture was written and published. And this, Mr. Young observes, would be more peculiarly useful, because those men, "confining themselves to practice alone, had left no register of their own meritorious deeds." I will present to you the substance of the information contained in this pamphlet, as in itself very important, and because the practice of Arbuthnot and Ducket has a direct bearing on the points I am now considering—DEEP PLOUGHING and MANURING.

"Mr. Ducket had sand, and sandy soils, alone, to deal with; but Arbuthnot's land classed among those harsh, wet, tenacious loams which are usually called clay, and ought to be esteemed such, relative to every circumstance that attaches to difficulty and management." Passing by what Mr. Young says of Arbuthnot's draining operations, I content myself with mentioning the principle of that improvement: "Lay your land dry, whatever may be the method pursued, before you attempt any thing else."

"In respect to tillage, Mr. Arbuthnot carried it to great perfection: He invented a swing plough for a pair of horses and the general depth of six inches, and a much larger one with wheels, for gaining the depth of twelve, and even of eighteen, for some peculiar crops, especially madder. Upon the advantages of deep ploughing he never had the least hesitation; but always declared that in all he had read or heard, he never met with one argument against the practice that had with him the smallest weight."—"In the essential operation of ploughing, he considered one earth [that is, one ploughing] well timed, and of

a right depth, as being much more efficacious than that repetition of tillage so common in every district."*

A judicious rotation, or round of crops, has long been considered, in England, essential to good husbandry: and so it is by skilful farmers in our own country; particularly in the middle States, where clover, so highly important in the rotation, has, for more than thirty years, been rendered wonderfully productive, by the application of plaister of Paris. The most usual course in England has been (excepting on stiff clayey soils) first year turnips, manured and kept clean by hoeing; the second year barley, with clover seed; the third year the clover mown for hay; and its second crop, at wheat seed time, ploughed in, and, where necessary to fill the seams, the ground harrowed, the wheat sown, and then harrowed in. This is called "wheat upon a clover lay." But by the long and frequent repetition of clover, (that is, once in *four* years) in their rotations, lands in England became (as they express it) "sick of clover:" and I have been informed that some lands in our middle States, long subjected to the like application of clover, exhibit like symptoms of disease or failure. But Mr. Arbuthnot introduced clover once in *three* years, without suffering by such more frequent repetition. "He attributed the failure of this plant to shallow and ill-executed ploughing: the result (says Mr. Young) justified his opinion."

Mr. Young mentions a lecture he had read to the Board of Agriculture, "on the means by which a farm can be made, by a right proportion of all the products, to support itself, without foreign assistance, in a state of high fertility; a question depending on the quantity or weight of dung resulting from the consumption in litter of a given weight of straw." This lecture I have not seen. But he considers the question as successfully decided, in Mr. Arbuthnot's practice, in the following manner: 134 sheep and 30 lambs were turnip fed, in a pen on a headland,

* The repetition of tillage here reprobated, refers, I presume, to the numerous ploughings given by many English farmers, at that period, preparatory to the putting in of their crops; which the single, deep and "efficacious" ploughing of Arbuthnot rendered unnecessary.—Were our ploughing for Indian Corn and Root Crops alike *deep* and *efficacious*, *before planting*, shallow tillage (called horse-hoeing) with light ploughs, during their growth, would suffice.

well littered with straw : in six weeks they required nearly six tons of straw [to give them clean and comfortable beds :] and in that time made 40 tons of dung, equal to that brought from London [stable dung it is to be presumed.] So every ton of litter produced near seven tons of dung.—But this weight must have been obtained chiefly by the earth of the headland absorbing the urine, of which, when fed on turnips, sheep make great quantities, and being finally mixed with their dung and litter. This recital reminds me of the recommendation, in my address to this Society in May, 1813, to carry earth into the barn yard, once in every two weeks, from Spring to Autumn ; adding to every layer of earth a coat of litter. I should then have advised a plentiful spreading of litter, had I not known that our courses of husbandry in Essex yielded very little straw.

In the same communication to the Society, I presented my ideas on the proper application of manure ; to wit, *always to bury it up quickly, when carried to the field*, to prevent great loss by its exposure to the sun and air; remarking, that the essence of manure was lost, not by *sinking* into the earth below the roots of cultivated plants, but by *rising* into the atmosphere, and so fleeing away. Here, also, I have the satisfaction of seeing the theory I had formed nineteen years ago (in the manner suggested in that communication) supported by the opinions and practices of such eminent Agriculturists as Messrs. Arbuthnot and Ducket. After noticing Arbuthnot's cultivation of madder, an article requiring a rich soil and extremely deep tillage, Mr. Young says—"there was one circumstance in his management, which, being applicable to more important articles, merits a more durable attention ; this is, the depth to which he ploughed in the dung: his tillage went to that of eighteen inches ; and he conceived there was no danger of losing, by this circumstance, either *vegetable* or *animal* manures, as *their* tendency, contrary to all *fossil* ones, was not to *sink*, but to *rise* in the atmosphere." Fossil manures are lime, marl, plaister of Paris, and other substances dug out of the earth, which increase the productive powers of soils.

Mr. Ducket's manner of applying dung, although his was a sand farm, was similar to Mr. Arbuthnot's. "Immediately con-

nected with the depth of tillage, is that to which dung may be safely deposited. He [Mr. Ducket] had not the least apprehension of losing it by deep ploughing; but freely turned it down to two or three times the depth common among his neighbours." Yet Mr. Young says, that farmers (and good farmers too) persist in a contrary practice. But he adds—"Enlightened individuals, thinly scattered, know better; having convinced themselves that Mr. Ducket's practice is not only safe but beneficial;" and then names one who "ploughs in his dung as deeply as his ploughs can go, turning it in nine inches, and would bury it twelve, did he stir to such a depth."

Confirmatory of the correctness of the practice of these two celebrated English farmers, is the fact stated by Sir John Sinclair, President of the British Board of Agriculture, in his account of the Improved Scottish Husbandry. He mentions one farmer who ridged his carrot ground, and buried the manure sixteen or seventeen inches deep, the ridges thirty inches wide. This farmer preferred, as a manure, a well prepared compost of peat-moss* and dung, ten tons, or double cartloads, per English acre. "The dung (or compost) being at the bottom, makes the top root of the carrot push immediately down, and swell to an enormous size; the roots being often sixteen inches in girt, and 18 or 20 inches in length."

To return to Mr. Ducket. His deep ploughing (says Mr. Young) was not practised above once in two or three years, and the successive tillage shallow. "By such deep ploughing, seldom given, Mr Ducket conceived that a due degree of moisture was preserved in his *light* land, by means of which his crops were flourishing in seasons of drought which destroyed those of his neighbours: and no one could more severely condemn the ideas which governed the Norfolk farmers, in leaving what they called their *pan* unbroken at the depth only of four or five inches. The operation of ploughing he thought could scarcely be given too seldom, provided when given it was done effectively: and he always carried this paucity of tillage as far as circumstances would permit: thus I have known him put in seven crops with only four ploughings." In another part of

* In Scotland, their peat lands are called peat-mosses.

his lecture, Mr. Young says—"If I were to name the circumstance which more than any other governed his (Mr. Ducket's) practice, I should say that the whole was founded in trench ploughing; and that the principle which governed this practice (a principle thoroughly impressed upon his mind as well as on the minds of those who draw intelligent conclusions) was that of giving as little tillage as possible to sandy soils."

"The next circumstance which I shall advert to (says Mr. Young) in the husbandry of Mr. Ducket, is the use of *long, fresh dung*, instead of that which in common management is turned and mixed till it becomes *rotten:* and in justice to his memory, I shall read the short recital of his practice, as I printed it three-and-twenty years ago. "Dependent on the Trench-Plough,* is Mr. Ducket's system of dunging. He conceives, and I apprehend very justly, that the more dunghills are stirred and turned over, and rotted, the more of their virtue is lost. It is not a question of straw merely wetted; but good *long* dung he esteems more than that quantity of *short* dung, which time will convert the former to. *Two* loads of *long* may become *one* of *short;* but the two are much more valuable than the one. Without the Trenching-plough, however, his opinion would be different. If long dung is ploughed in, in the common manner, with lumps and bundles sticking out at many places along every furrow, which lets the sun and air into the rest that seems covered, he thinks, so used, it is mostly lost, or given to the winds: in such a case, short rotted manure will be better covered, and should be preferred. But with his plough nothing of this happens; and it enables him to use his dung in such a state as gives him a large quantity instead of a small one. The good sense of these observations must be obvious at the first blush." Mr. Young adds—"*The use of* FRESH *instead of* ROTTEN *dung, is, in my opinion, one of the greatest agricultural discoveries that has been made in the present age.*" He then states a striking experi-

* The Trench-Plough of Mr. Ducket's invention was so admirably contrived as completely to bury whatever was intended to be turned in. Mr. Young says he saw him turn down a crop of rye, six feet high, so that not an atom was left visible; and yet the depth did not exceed eight inches. Trench-ploughing has sometimes been effected in this country by a second plough following in the same furrow after the first, and going a few inches deeper.

ment made by himself—67 small cart-loads of fresh yard dung produced two successive crops of potatoes, yielding together 742 bushels; at the same time, the same quantity of yard dung, after six months rotting, yielded 708 bushels, leaving [to the fresh long dung] a superiority of 34 bushels. But had the fresh dung been kept as long as the other, it would have required at least twice, perhaps thrice as much, to have produced the quantity used." [That is, twice or three times 67 loads of fresh long dung, if kept and often turned and mixed to produce fermentation and rotting, would have shrunk, or been reduced, to 67 loads of short rotten dung.] "If the crops therefore had been only equal, still the advantage [of the fresh dung] would have been most decisive."

"I shall not quit (says Mr. Young) the Husbandry of two men who carried tillage, on soils so extremely different, to its utmost perfection, without remarking the circumstances in which they agreed. Both were equal friends to deep ploughing; both rejected the common repetition of tillage, and reduced the number of their operations to a degree that merits attention; both rejected fallows; and both ploughed deeply for depositing manure, without any apprehension of losing it. These are very important points in Practical Agriculture."

To this account of the successful practices of these two celebrated English Farmers, it may be useful to subjoin a few observations. I have thought it proper so far to present them in detail, in order to develop principles; not expecting a *precise* adoption of their practices; which, indeed, without their or similar superiour ploughs and other implements, would be impracticable: but with such instruments as we possess, or may easily obtain, we can materially increase the depth of our ploughing, and I hope contrive effectually to cover our manure. *This should be wholly applied to Tillage Crops;* for which the manuring should be so ample as to insure a succession of good crops through the whole rotation, without the aid of any additional manure, especially for wheat, rye, barley or oats: for besides increasing the seeds of weeds (with which all our lands are too much infested) such additional manuring, *immediately* applied to the small grain crops, renders them more liable to injury from

mildews. Of this I am fully satisfied, as well from numerous statements of facts which I have seen in books of husbandry, as from the circumstances under which remarkable mildews have otherwise been noticed. One of our countrymen, who wrote a short essay on the subject prior to the American Revolution, has given the only solution of the causes of mildews that has ever appeared satisfactory to me: perhaps at some future time I may find leisure to show the correspondence of facts with his principles.*

II. ON ROOT CROPS.

Premiums having been proposed to encourage the raising of Carrots, Ruta Baga and Mangel Wurtzel; and as these articles, cultivated extensively, are of vast importance to farmers; I can perhaps in no way better promote the views of the Society, in their vote before mentioned, than by describing the methods of cultivating those roots, which elsewhere have been practised with great success, but to which, and indeed to the roots themselves (carrots excepted) most of our husbandmen are strangers.

The introduction of Clover, and subsequently carrying the culture of the Common Turnip extensively into the field, marked distinguished eras in the improvements of English Husbandry. At a later period, Carrots were cultivated by some farmers; and within a few years past, the Mangel Wurtzel and the Ruta Baga have become objects of general cultivation. And now these five articles constitute essential branches of the highly improved Husbandry of Great Britain.

Common Turnips. These for a long time were raised (and perhaps this practice is still very general) by sowing the seeds broad-cast, and weeding and thinning them with hoes, till the plants stood at from a foot to fifteen inches apart. But the most correct practice appears to be that of drilling the seeds in rows, thinning them to the distance of ten or twelve inches in the rows, and hoeing and keeping them clear from weeds.

* This essay, subscribed "A New-England-Man," is published in the second volume of the Memoirs of the Philadelphia Society of Agriculture.

And this weak, watery root has been the principal food of immense flocks of store sheep, during the winter; and when plentifully given, only with the addition of straw, has served to fatten cattle and sheep for the market.

Carrots. Even these plants, so long after they vegetate extremely small, were also raised from seed sown broad-cast. But this awkward practice, I believe, has generally given way to the row-culture, whether the seeds were sown by hand, or by the instrument called a drill. In very rich land, great crops have been raised where the rows were only from twelve to fifteen inches apart. The great crop of 752 bushels, weighing eighteen tons and three quarters, raised on one acre, in Salem, by Erastus Ware, in 1817, was in rows about sixteen inches apart. The seed was sown the 14th of May. But I am inclined to think a preferable mode would be, to sow the seeds in double rows about ten inches apart, with intervals of three feet between the double rows, so as to admit a small plough, as well as the hoe, in their cultivation. In this case, a deep furrow being opened by the plough, the manure should be regularly thrown into it, and covered by four back furrows, so forming a ridge over the manure; and this ridge being laid level with a light harrow, or with rakes, or if the soil be in fine tilth, by a light roller, will then be ready to receive the seed.—As soon as the carrots are plainly to be seen, they should be hoed and weeded; or the weeds will soon outstrip the carrots (which are of very slow growth at first) and render their cleansing vastly more troublesome and laborious. They should also be thinned, to stand single, and only from three to five inches apart in the rows; or the roots will be small, and cost much more time in handling and topping (cutting or wringing off the tops) at the time of harvesting them. The entire crop, too, will doubtless be smaller than when the plants are thinned as here recommended.

The Mangel Wurtzel. This plant yields a much more abundant crop than the Carrot; and at the same time contains, in the same quantity or weight of roots, a great deal more nourishment: whence it is natural to suppose that it requires a richer soil than Carrots. I have not made sufficient trials to enable me

to express a decided opinion on the best mode of cultivating the Mangel Wurtzel; and will therefore lay before you the successful practice, on strong land, in the county of Essex, in England, as it is stated, from a recent English publication, by the Philadelphia Society of Agriculture.*

The Mangel Wurtzel is sometimes called the Great, or Improved Beet, and Root of Scarcity; but now, more generally, Mangel Wurtzel, its German name. The following is the account of its culture, at Bedfords, in Essex.

"It may be proper, in the first place, to state what is meant by *strong land.* The surface soil is loamy, and from four to twelve inches deep, upon a bed of strong clay mixed with gravel. It is too heavy, and generally too wet, in the winter, even for sheep to eat a crop of turnips on the ground; and although good turnips are raised upon it, it is always necessary to draw them for the sheep, stall-fed cattle, or cattle in the yards."

"In the middle, or latter end of the month of April, the furrows are set out with the plough, two feet apart, and double ploughed; that is, the plough returns on the [same] furrow to the point whence it set out, forming a ridge between each two furrows."

"Double ploughing with a common plough is preferable to single ploughing with a double mould board plough, because it affords a greater depth of loose earth than the double mould board plough would produce."

"In these furrows, the manure, which should be in a rotten state, is deposited, after the rate of six cubic yards to an acre."†

"The ridges are then split by the plough, going and returning the same way as before mentioned; leaving the manure immediately under the middle of the new ridges. A light roller is

* Memoirs of the Society, Vol. III. Appendix.

† Six cubic yards contain 162 cubic feet, or three cartloads for a pair of oxen. A cart body, 7 feet long, 4 feet wide, and 2 feet high, *in the clear*, contains 56 cubic feet; and three times 56 are 168.—I doubt the necessity of manure being "in a rotten state," seeing it is to be so deeply buried, for this or any other root crop intended for the food of domestic animals; especially for Mangel Wurtzel, which, to obtain a full crop, should be sown very early, as soon as the ground is dry enough to be ploughed. The powerful fermentation of fresh dung might impart to the soil a salutary warmth in the cool spring season. At least it may be worth while to try it.

then passed along the ridges,* in the middle of which the seed is dibbled, so that the plants may receive all the benefit which can be derived from the manure."†

"The seed is deposited about an inch deep, whilst the moisture is fresh in the earth,‡ and covered by drawing a garden rake along the rows. After this, the light roller is again passed along the ridges, [to press the earth upon the seeds] and the work is finished."

* These narrow ridges, as formed by the plough, are sharp: by passing a light roller over them they are flattened to a breadth of eight or nine inches. The light roller, drawn by a horse, that walks in the furrow between them, flattens two ridges at a time. Thus rolled, the manure will be covered eight or nine inches deep.

† A dibble is a simple tool, which may be of different sizes and forms, according to the uses it is intended to serve. If for setting (in transplanting) cabbages or other like plants, it may be a round stick about an inch and a quarter in diameter, shaved down at one end (in a slope of eight or ten inches long) to a blunt point. An old spade or shovel handle is well adapted to the purpose. If much used, the slope may be advantageously covered smoothly with iron. But for putting in *seeds*, the dibble may be in the form of the letter T. To make one, take a piece of wood about three feet four inches long, and about an inch and a quarter square. In one of the sides bore holes in a line, and insert teeth at the proposed distance of the plants in the row: if for Mangel Wurtzel, at ten, eleven, or twelve inches apart: and let the teeth be as long (projecting from the head-piece) as the proposed depth at which the seeds are to be sown. On the opposite side of the head-piece, bore a hole in the middle, large enough to receive a handle of convenient length. On the top of the handle fix a cross-piece five or six inches long, to be grasped by the hand in using the tool. With it, as many holes for seeds will be made, at every movement, as there are teeth in the head. The handle may require bracing, in like manner as a rake handle and its head are braced by means of bows.

It now occurs to me, that perhaps the light roller used in levelling the tops of the ridges may be set with teeth, and thus perform the additional office of making holes for the seed; and with vastly greater expedition than by dibbling. A light roller, long enough to flatten two ridges at once, of thirteen inches in diameter, and furnished with two sets of four teeth each, to pass along the middles of two adjoining ridges—and the four teeth of each set being inserted at equal distances in a circle of the roller,—the holes for the seed would be made at the desired distance of near one foot from each other. The teeth should be so shaped as to leave the holes made by them fairly open. For this purpose they may be an inch and a half wide and three quarters of an inch thick, where their shoulders are fayed to the roller, and taper thence to a rounded thick edge at their extremities. The same teeth, if not too long, may serve to regulate and expedite the sowing of the Ruta Baga seed.

‡ It is very important to have seeds of all kinds sown as soon as possible after the ground is ploughed and prepared to receive them, and before the moisture of the fresh stirred earth is dissipated by the sun and drying winds: otherwise some may never vegetate, or not till after a fall of rain; and so precious time may be lost, and an uneven crop be produced.

"When the plants are about the size of a radish, they are hoed with a turnip hoe, leaving the plants in the row about twelve inches apart. If any of the seeds fail, and there happen not to be an even crop, the roots where they are too thick are drawn out before the hoeing takes place, and transplanted to fill up the vacant places, and insure a full crop; which is always certain, inasmuch as 99 plants out of 100 thrive and do well. In transplanting, care is necessary to prevent the point of the root from turning upwards."

"The weeds, while the plants are young, are kept hoed; but after the head of the plant has once spread, no weed can live under its shade; and the expense of hoeing afterwards is trifling indeed."

"The whole of the crop is taken up in the month of November,* in dry weather. The tops are cut off near the *crown* of the plants, and the plants, when perfectly dry, are piled up in a shed, and covered with straw sufficiently thick to preserve them from the frost. They kept last year till the latter end of March, and they would have kept much longer."

"Where a field selected for a crop of beet [the Mangel Wurtzel] happens to be in a foul state, the seed had better be sown in a garden, and the whole field planted with the young beet, when of the size of a radish. This will give time for cleaning the ground, and fitting it for a crop; for although the beets are destroyers of weeds, it is not meant to recommend sowing them on foul ground, or in any way to encourage a slovenly system of farming."

"The method of cultivating the beet root here recommended is the same as that used in the cultivation of turnips, in Northumberland and other parts of the North [of England] with this exception, that the rows there are twenty-seven inches apart. There may be reasons in the North for still preserving that space; but in Essex the effect of it, in the cultivation of the beet root, would be, that instead of forty-eight tons per acre, forty-

* The time of taking up the Mangel Wurtzel must be regulated by the climate. There is sometimes a frost in the latter part of October, in this county, severe enough to injure this root, exposed, as the greater part of it is, above ground. Light frosts, however, will do it no harm, while the roots remain in the ground, and in a degree sheltered by their leaves.

three tons only would be obtained. Experience has proved, that the roots do not get to a larger size in rows three feet apart, than they do in rows two feet apart. It may therefore fairly be presumed, that they would not be larger, in rows twenty-seven inches apart; and if not larger, the weight of the crop, per acre, must be less, because the plants decrease in number as the rows increase in space."

To the preceding account of cultivating the Mangel Wurtzel, I will subjoin a few

REMARKS.

In this mode it is intended that every two feet of ground should bear one plant: and as an acre contains 43,560 square feet, there will be half of that number of plants on an acre, and the roots must weigh nearly five pounds each, on an average, to yield forty-eight tons. The land must indeed be strong to produce so heavy a crop. If our lands, enriched and prepared in the best manner conveniently in our power, can be made to yield half as much, we shall have reason to be satisfied: especially as the Mangel Wurtzel, quantity for quantity, contains more than twice as much nutritive matter as the Ruta Baga, and even fifty per cent. more than Carrots; according to the experiments (by analysis) of a celebrated English Chymist, Sir Humphry Davy, which he stated to the British Board of Agriculture. These experiments were made with the red and white beets; but it is presumed that the Mangel Wurtzel produces as much nutriment as any other beet.

Instead of *six* it may be advisable to apply at least *twelve* cubic yards (that is six such cartloads as were before mentioned) of manure to an acre; and to distribute the same in deep furrows four feet apart. This would give four square feet of ground to each plant, the plants being at a foot distance one from another in the rows: and the rows, four feet apart, would admit the use of the common horse-plough in their cultivation.

Carrots and the Mangel Wurtzel possess one eminent advantage: that they are not, to my knowledge, annoyed by insects at any period of their growth. Whereas the Ruta Baga and other

turnips while in the seed leaf, are injured (in England whole fields are often destroyed) by a small black fly: and the Ruta Baga (like cabbages) when far advanced in growth, is sometimes infested, and in dry seasons half ruined, by plant-lice; as was my small crop in 1818.

The Mangel Wurtzel also possesses one peculiar advantage above all other root crops, that as soon as the tops, or leaves, are full grown, they may be stripped off (leaving only the small heart-leaves uninjured) and given to cattle and swine. This stripping may be repeated once or twice: and it is said that the roots thrive better for the stripping. If not stripped off, many of the under leaves perish.—The leaves are pronounced excellent for increasing the richness and quantity of milk in cows; and so are calculated to supply the deficiency of herbage in the common pastures, which generally fail, more or less, by the beginning of August. An acre twice stripped will yield several tons of leaves.

The Ruta Baga. This root may be cultivated in the manner just described for the Mangel Wurtzel; the ground being prepared in the same manner. In England, they appear to be most commonly grown in rows twenty-seven inches apart, with the plants at a foot distance in the rows. But William Cobbett, who in a small book, published in New-York, has minutely described his own practice, both in England and America, asserts, that the largest crops are attainable by growing the Ruta Baga in rows four feet apart, with the plants about ten inches or a foot distant from each other in the rows: and that in this mode of culture he has raised, in England, thirty tons to the acre.

For this mode of culture, the manure, being deposited in furrows four feet apart, is covered by four back furrows, two on one side and two on the other, of each line of manure; by which little ridges are formed: and if the ploughing be deep (as it ought to be) there will be a deep gutter between every two ridges.—The tops of the ridges being made fine with a light harrow, or with rakes, the seeds are sown with a drilling machine; or by hand, which Mr. Cobbett says he prefers to a drill. Two men sowed for him seven acres in three days, using about four pounds of seed, in this manner: a man went

along by the side of each ridge, and put down two or three seeds in places at about ten inches from each other, just drawing a little earth over, and *pressing it on the seed*, in order to make it vegetate quickly, before the earth became too dry. But, he adds, the seven acres might have been sown by one man in a day, by just scattering the seeds along on the top of the ridge, where they might have been buried with a rake, and pressed down with a spade or shovel, or other flat instrument. But he used a light roller, to take two ridges at once, the horse walking in the gutter between.

The time of sowing the seeds must vary with the climate. On Long Island (State of New-York) Mr. Cobbett's trials of one year led him to prefer the 26th of June : but in our own county, I would not pass the middle of that month. Indeed I think it expedient (in order to ascertain the fittest time) to commence sowing the seed as soon as the ground can be prepared after the planting of Indian corn, and to continue to sow, in small plots, weekly, until the middle of June.

As soon as the plants are fairly up, hoes and the fingers are to be used, taking out all the plants but one in each ten or twelve inches. As soon as weeds appear, hoeing is to commence, hoeing the tops of the ridges to the width of about six inches, showing the plants distinct and clean. Then the plough is introduced, taking a furrow from the side of one ridge, going up the field, a furrow from the other ridge coming down, then another furrow from the same side of the first ridge going up, and another furrow from the same side of the other ridge coming down. In taking away the last two furrows, you go within three inches of the turnip plants. Thus a ridge is formed over the original gutter. The next process is, to turn these furrows back again to the turnips. This hoeing and ploughing is to be repeated, when the appearance of the weeds requires it; and afterwards, the few weeds which may rise are to be hoed or pulled up. In this way Mr. Cobbett thinks a thousand bushels of Ruta Baga may be raised on an acre that will yield fifty bushels of Indian corn.

In describing the culture of the Mangel Wurtzel, transplanting was mentioned, to fill vacant places. The same may be prac-

tised with the Ruta Baga. But unless those vacant spots be dug afresh, the transplanted roots will be much inferior to their untransplanted neighbours; as I found in my last year's experiment. And Mr. Cobbett mentions the like difference in his practice. At the same time he strongly recommends the raising of the Ruta Baga, by *transplanting*, for *entire crops*, as far preferable to the sowing of the seeds, and letting the plants grow where their seeds first vegetated. But then he considers it indispensable to perform this transplanting *on ground fresh ploughed*. And by sowing the seeds in beds, to raise plants, as we do for cabbages, a month's more time is allowed to prepare the ground for their reception.—In the work of transplanting, the plain dibble before described is a necessary instrument. The hole made by it must be fully as deep as the length of the root; and this being introduced (taking care in putting it into the hole not to bend its point) the dibble is thrust down by its side, and by a dexterous twist, or circular motion of the hand, the earth is pressed close against the root, in its whole length. The largest crop of Ruta Baga he ever raised in England, Mr. Cobbett says, was by transplanting, on seventeen acres, which produced thirty three tons to the acre; the rows (on ridges) four feet asunder, and the plants a foot asunder in the rows.

In this mode of raising the Ruta Baga, by transplanting the entire crop, so much time is gained for preparing the ground, that two crops of weeds may be destroyed, by that number of ploughings; the first in the beginning of June, and the second immediately before transplanting. But Mr. Cobbett recommends a previous *deep* fall-ploughing, and another *deep* ploughing in April, of the ground intended for the Ruta Baga. The like two deep ploughings will be equally proper and beneficial for the Mangel Wurtzel and carrots.

Among the advantages of the transplanting method, mentioned by Mr. Cobbett, one is, "that it saves almost the whole of the *after culture*. There is no *hoeing*; no *thinning* of the plants; and not more than one ploughing between the ridges."

Harvesting of Roots. The Mangel Wurtzel, growing chiefly above the surface, and thus exposed to frost, should be taken up the latter end of October or beginning of November, accord-

ing to the nature of the season. The harvesting of Carrots may follow that of the Mangel Wurtzel; and the Ruta Baga succeed the Carrots. In the first experimental culture of these roots, in which but small quantities are raised, they can be preserved in dry cellars not liable to freezing. Where large quantities are raised, they may be deposited in heaps, sufficiently covered, in a dry field. The common method of heaping and covering roots in the field, and which Mr. Cobbett practised with the Ruta Baga, is perhaps as good as any. Holes of a round or square form are dug about a foot deep, and about fifty bushels are put into each, piling up the roots above the level of the surface of the land, sloping to the top: then covering them with straw, throw earth over the whole to a depth sufficient to guard them from frost. Smooth the surface of this earth by beating it close with the back of a spade, or other instrument, the better to cast off rain. On Long Island and in Pennsylvania, a covering of earth a foot or fifteen inches deep has been found sufficient. A greater depth will probably be necessary here. In throwing up this cover, a trench will be formed on all sides of the heap, to receive the water running off it. It may be well to sink the bottom of the trench lower than the bottom of the hole in which the roots are deposited.—Where large quantities are to be thus preserved, several loads may be put into one hole: and then oblong heaps will be best, as requiring less labour in covering them.—A quantity of roots, for feeding cattle till the middle of December, may be kept in a barn or stable covered with straw or any dry litter. I would begin feeding with Mangel Wurtzel—follow next with Carrots—and conclude with Ruta Baga; for the latter root will keep sound until the commencement of the summer succeeding their growth.

All the roots, especially the Mangel Wurtzel and Carrots, should be fully dried before they are housed, or covered in the field, to guard them against rotting.

Roots for Raising Seed. Of the Mangel Wurtzel I would select large and fair roots, of a red colour, whose bodies have grown most above ground, and with a moderate, if not the smallest, quantity of leaves; for although *these* are valuable for stripping, the *roots* are much more valuable; and I am inclined to think those with small tops are least liable to rot.

Of Carrots, large and fair roots of the deepest yellow colour, and with the smallest tops in proportion to the size of the roots, are to be preferred.

With regard to the Ruta Baga, Mr. Cobbett says it is apt to *degenerate*, if the seed be not saved with care. "We in Engl nd (says he) examine well to find out those that run least into *neck* and *green*. We reject all such as approach at all towards a *whitish* colour, or which are even of a *greenish* colour *towards the neck*, which *there* ought to be a little of a *reddish cast*."

Varieties of plants of the *same kind* (the different sorts of cabbages, for instance, or of Indian corn) if growing near together and bearing seed, will impart to one another their respective peculiarities; and injuriously, whenever it is desired to preserve their distinct qualities unmixed, and to prevent an inferior engendering with one of superior quality; the impregnating dust of the flowers of plants, falling on the flowers of other plants of the same kind, producing effects similar to the crossing of animals of the same kind but of different breeds. In a word, the *sexual* system exists in plants as well as among animals; only in plants the male and female are generally united in the same plant; as in Indian corn, the male impregnating dust (the farina) is in the tassel or flower, at the top: the ear is the female, and from every cell of the future grain proceeds a thread, which together constitute what is called the silk, on which the farina falling, causes the cells to fill, and become, when ripe, kernels of corn. In most fruits, as the apple and pear, the male and female are in the same flower. But in hemp, some of the plants are exclusively male, and others exclusively female.

The Ruta Baga, therefore, when set out for bearing seed, should be placed at a distance from every other seed-plant of the Turnip or Cabbage kind. So likewise the Mangel Wurtzel, intended to bear seed, should not be set near any other seed-beet plants. It may not be amiss to add, that for the same reasons, pumpkins, squashes, melons, cucumbers, in all their varieties, in order to preserve them in purity, should be planted at some distance from each other.

Pumpkins, as food for domestic animals, seem closely connected with the roots before mentioned. Every farmer knows

their value for milch cows, for fattening cattle, and for swine. Their consumption conveniently precedes that of the Mangel Wurtzel.

With ample supplies of the Vegetables whose culture I have mentioned and described, our present Stocks may be better fed, their numbers enlarged, our coarse fodder be more advantageously consumed, our manure increased, and pork and beef, and the products of the dairy, probably doubled. The latter, in particular, are miserably deficient, from the want of juicy food for cows, in continuance of the supply yielded by our common pastures just at midsummer. Pumpkins and the roots, indeed, will not be ready to keep up that supply: but oats and barley, and above all Indian corn, may be sown and planted, to be cut green, and carry along our cows to the last of September, when pumpkins will begin to ripen. The consumption of these green crops and roots, by producing vast additions to our manure, will enable us to enrich our fields, and to make annual additions to the products of our farms.

The immense importance of providing for cows a full supply of food, and of food which they relish, to the extent of their appetites, has been demonstrated by many examples of very large products of milk, butter and cheese, from cows so supplied. The following statement from a recent English publication is a further illustration of the fact:—"A farmer, some years since, kept *eighteen* cows upon a *Common*, and was often obliged to buy butter for his family. The Common was *inclosed* [which deprived the farmer of his pasture;] and the same person supplied his family amply, with milk and butter, from *four* cows *well kept*."

III. ON INDIAN CORN AND WINTER-GRAIN.

The ancient, and to this day the general practice, in cultivating Indian corn, has been to plant it in squares, and in the course of its growth to draw up earth about the stems of the plants, forming *hills*; under the idea of supporting them against strong winds: but the necessity or utility of this practice has long been doubted. I have sometimes cultivated Indian corn

without raising any hills about the plants; and, from the result, am satisfied that hills are not necessary. If, indeed, winter wheat, or rye, is to be sown among the corn, at its last dressing, I think the hilling must be injurious: for the richer mould being drawn up into hills, the intervals are robbed of what is requisite to produce an even crop.

I am aware that some intelligent farmers consider it bad husbandry to sow winter grain among Indian corn—to *double-crop* the ground. But if this be *rich*, and in *fine tilth* by deep ploughing before the corn crop is put in, and good and clean tillage accompanying its growth, I can perceive no solid objection to the practice. With us, the early sowing of winter grain is of the first importance, to insure a full crop, early ripe, and most secure from mildew. The husbandry of Mr. Ducket, already described, justifies the practice. I know it is already common amongst us; but without the *deep tillage* which enabled him to put in seven crops with only four ploughings. With such complete tillage, of a soil so enriched as to yield forty or fifty bushels of Indian corn to the acre, grown on a level, without hills or ridges; and if, in harvesting the corn, it be cut close to the ground; I see no reason why grass seeds may not properly be sown on the winter grain, in the spring. In this way, may be obtained a crop of Indian corn the first year—a crop of wheat or rye the second year—and hay the third and fourth years; and all from one deep ploughing, and a handsome culture of the Indian corn.

By the early sowing of winter grain among Indian corn, it quickly vegetates, and sends forth numerous branches; and soon covering the ground, prevents or checks the growth of weeds. Probably, too, the plants, acquiring so much strength by early sowing (for the roots must multiply and extend in proportion to the growth above ground) are less liable to be winter-killed.

IV. ON LIVE STOCK.

I have now to present to your notice the other of the Three Celebrated English Farmers, described by Arthur Young—Mr. Bakewell—the most distinguished improver of live stock, or

principles of his own, in Great Britain. "The principles he began upon (says Mr. Young) were *fine forms, small bones, and a true disposition to make readily fat*, which is indeed inseparable from small bones, or rather fine bones, and fine forms, or true symmetry of the parts." Before Bakewell's day, the rules which governed Breeders of Live Stock, Mr. Young pronounces "a tissue of absurdities."

He began his improvement of sheep, by selecting from the best in his neighbourhood. And so little had any correct principle of improvement been known or regarded, that a guinea or half a guinea extraordinary would give Mr. Bakewell the choice of any sheep in any flock. And his uncommon sagacity enabled him, by the best selections and judicious crossings, to form a breed distinguished above all others, for *the disposition to fatten, early maturity, a form indicating strength of constitution, weight in the most valuable parts*, with *lightness of offals*. Mr. Young expresses his opinion, that there is not a breed of any sort of live stock in Great-Britain, that does not derive its improvement from the skill, knowledge and principles of Mr. Bakewell. Another eminent Agriculturalist declares (and Mr. Young does not think he exaggerates) "that Mr. Bakewell enabled those who followed his ideas, to produce two pounds of mutton where only one was produced before."

Mr. Young adds, that Bakewell was the most careful feeder of stock that he ever met with, and who made his food go the farthest. To horses and cattle in stalls, he did not permit more than a handful of hay to be given at a time; and the same economy was used in all other feeding.—But his stocks were so large as to require one or more persons to be appropriated to that service. This practice, on our small farms and with our small stocks, cannot be fully adopted: but it may be imitated, in some degree, during the season (winter) most requiring such attention. By feeding them in this manner, the cattle will doubtless *eat more*, but they will *waste less:* so that while, in the whole, no more fodder will be consumed, the stock will be put into much better plight.

Cleanliness, also, will materially contribute to the health and thriving of stock. The common cattle-stalls of our country are

so ill-contrived, and so straitened in their dimensions, that the cattle are constrained to lie down, in part in their own dung. This dries and forms a thick coat on their hind quarters, from which they are not relieved till they shed their hair in the spring. They are thus rendered *uncomfortable:* to be *uncomfortable* is to suffer some degree of *pain;* and no one will suppose that animals in *pain* can *thrive*, or *preserve their plight*, with the same food, equally with others perfectly at ease. Even hogs, though prone to wallow in the mire, in warm weather, are always pleased with a dry bed, and thrive best when kept clean. I have somewhere read an account of an experiment made with two, confined in separate pens, and fed exactly alike: one was suffered to be constantly foul with the mire of his sty; the other, washed every day, and kept clean, far outstripped the former in thriving.

It may be useful to add some further information on Live Stock, from the writings of Sir John Sinclair, President of the British Board of Agriculture. He proposed to a gentleman in England,* who is eminent for his knowledge and accurate observations relative to plants and animals, some questions concerning Live Stock. In one of his answers, he says—"I have found the food animals generally require, to keep them in proper condition, is much more nearly proportioned to their *height* and *length*, than to their *weight.*" In confirmation of this opinion, he adds, that one of his neighbours made a comparative experiment with the Devon and Hereford cows; and though fond of the former for their neatness, he gave them up, because "they would not nearly live upon the same food which supplied animals *stouter* and *more compact*, of the same weight."

To the question, "What is the best shape for feeding well with little food?" Mr. Knight answers—"The more deep and capacious the chest, and the shorter and lower any animal is, relative to its weight, the better adapted it will be to live and fatten upon little food; the more labour it will also go through; and I have always found the most short legged oxen to be the best labourers. Mr. Marshall also observes, in his Rural Econo-

* Thomas A. Knight, Esq.

my of Gloucestershire, that the best labouring ox he ever saw, had the shortest legs."

I will detain the Society no longer than to make a few observations

V. ON ORCHARDS.

I advert to this subject for the purpose of suggesting the utility of propagating Sweet Apples.

After providing a due proportion of apples for the table, and the ordinary purposes of cookery, I do not hesitate to express my opinion, that for all other uses, sweet apples are entitled to the preference. The best cider I ever tasted in this county, was made wholly of sweet apples. They afford also a nourishing food to man and all domestic animals. What furnishes a more delicate repast than a rich sweet apple baked and eaten with milk?—I recollect the observation made to me by an observing farmer, before the American revolution, that nothing would fatten cattle faster than sweet apples. Mentioning this, a few years since, to a gentleman of my acquaintance in an adjoining state, he informed me, that he was once advised to give sweet apples to a sick horse. Happening then to have them in plenty, the horse was served with them, and he soon got well: and continuing to be fed with them, he fattened faster than any other horse he had ever owned (and he had owned many) that was fed with any other food.

Mentioning to the same gentleman, what I had long before heard, that a good molasses might be made of sweet apples, he confirmed the fact by an instance within his own knowledge: and further expressed his opinion, (and I have not known a man whose practical judgment was entitled to more respect) That it would not be difficult, by forming orchards of sweet apples, to supply molasses for the general consumption of the United States. I have never tasted any sweet apple molasses; but I suppose it has not (nor has honey) the rich sweet of molasses from the sugar-cane; yet, for family uses in general, it would be a useful substitute for the latter. The process in making it I suppose to be very simple. The apples being ground, and the juice (or cider) expressed, at the cider-mill, it is immediately boiled,

(that is, before any fermentation takes place) and the scum being taken off as it rises, the boiling is continued until the liquor acquires the consistence of molasses.

Sweet apples are of different degrees of sweetness. Those of the richest kinds should be chosen for the purpose of making molasses. But in grafting, the cions should be taken (as they ought to be for all kinds of fruit) not from old, worn out trees, but from those whose originals are in full health and vigour. For it has been satisfactorily ascertained in England (and proofs of it are not wanting in our own country) that fruit trees have their infancy, (springing from seeds) youth, maturity, and old age; and that when they have reached this last stage, it is in vain that attempts are made to continue them. Or if the cions take, and grow for a few years, they are unproductive, and soon decay. The reason is plain: every cion is a part of the tree from which it is taken; and if this be in a state of decrepitude, so will be the cion; and although grafted on a youthful, thrifty stock, it will be of no avail.

ERRATUM.

Page 8—for top root, read tap root.

THE

TRUSTEES' ACCOUNT

OF

THE CATTLE SHOW,

AND

OTHER EXHIBITIONS,

AT TOPSFIELD,

OCT. 5, 1820.

SALEM:
PRINTED BY JOHN D. CUSHING.
1821.

TRUSTEES' ACCOUNT, &c.

This being the first essay of the Essex Agricultural Society, a splendid exhibition was not looked for. The experiment has shown the necessity of different arrangements, which shall admit of a more convenient and satisfactory inspection of articles presented for premiums—of time to consider the merits of each —to write the reports thereon, by the various committees, and to publish, and deliver to the successful candidates, the premiums which shall be awarded. The want of such arrangements has been the chief cause of the delay in publishing the transactions of the day. The Trustees subjoin to this account a plan which they hope will effectually remedy, in future, the inconveniences which have attended the first essay.

REPORTS OF COMMITTEES.

No. I.

WORKING OXEN AND NEAT LIVE STOCK.

The Committee appointed to examine *Working Oxen* and *Neat Live Stock*, and to award premiums, have attended to the duty assigned them, and respectfully

REPORT,

That the number of large and superior working oxen far exceeded their expectations, demonstrating their utility and superiority in the labours of the husbandman, and the importance of the requisites prescribed by the society, to entitle them to premiums; inasmuch as among the many excellent cattle exhibited, and which rendered it in some cases a matter of very careful discrimination to whom the prize should be awarded, there was

an obvious deficiency in training them to their highest usefulness, which might otherwise have secured the premium. Under these impressions,

They have awarded the first premium, for the best trained working oxen, not less than five years old,

To Mr. Samuel Wheeler, of Newburyport, for a yoke of oxen owned and driven by himself—fifteen dollars.

To Mr. Samuel Hood, of Topsfield, the second premium for his yoke of oxen, five years old, of a deep red colour—ten dollars.

The premium for the best bull, not less than one year old, to Asa Andrews, Esq. of Ipswich, for his dark brindle bull—fifteen dollars.

The second to Jacob Wilkins, of Marblehead, for his red bull, —ten dollars.

The third to Gorham Parsons, Esq. for a dark red bull, from his farm in Byfield—five dollars.

It was a subject of regret to the committee, on examining the milch cows, that so few were entered for premiums; as they are always a great object to the farmer, both for the dairy and his future stock; and it being so obvious that a first rate cow requires no more expense for her support than an inferior one—requiring of the farmer only some care in selecting his stock for breeding; for he seldom if ever gives or obtains, in exchange, between a superior and a common cow, more than the difference of profit for a single year; always leaving him who takes the common one impoverished by the exchange. It is not believed that the sample exhibited bears any proportion to this valuable animal through the county, cultivated as it is by capable and enterprising farmers. The cause of the deficiency, at this exhibition, must be attributed to the undue expectations raised on this subject—and it cannot be doubted will be remedied at the next anniversary.—They remarked however with satisfaction, that those intended for premium were very superior—there were also several others exhibited, but not intended for premium, that were very fine, particularly a cow and her progeny belonging to Asa Andrews, Esq. of Ipswich, being the same stock of the bull that obtained the first premium, and a cow of

the famous Bakwell breed, belonging to the Hon. Timothy Pickering—and several others.

They adjudged the premium for the best milch cow to Mr. Jacob B. Winchester, of Salem—fifteen dollars;

And for the second best to Samuel Farrar, Esq. of Andover, —ten dollars.

For the best bull calf to Mr. Jonathan Berry, of Middleton, —five dollars.

For the second best to Samuel Farrar, Esq. of Andover,— three dollars.

For the best heifer calf, to Mr. Simon Smith, of Saugus—five dollars.

For the second, to Hon. Timothy Pickering—three dollars, for his calf raised from native stock.

It was particularly gratifying to see the large number of bull and heifer calves, entered for premiums, evincing as it does the interest already excited by this exhibition, and the spirit of improvement which is so happily extending throughout the county. Should this spirit continue, it is not difficult to anticipate the period not far distant, when the neat cattle of the county of Essex will vie with any part of this country for beauty and worth.

Which is submitted by

BENJAMIN T. REED,

Per order of Committee.

No. II.

FAT OXEN AND SWINE.

The Committee appointed to award premiums on *Fat Oxen* and *Swine*, have attended that duty, and

REPORT,

That no fat oxen were offered.

The Committee award—

To Mr. George Adams, of Newbury, for the best boar—eight dollars.

To Mr. Samuel Hood, of Topsfield, for the second best boar, —five dollars.

To Mr. Elias Putnam, of Danvers, for the best breeding sow, —eight dollars.

To Mr. Benjamin Savory, of Newbury, for the second best, —five dollars.

To Mr. Elias Putnam, of Danvers, for the best litter of weaned pigs—six dollars.

To Mr. William W. Little, for the second best—four dollars.

The Committee add, that Mr. Amos Shelden, of Beverly, exhibited a very fine boar, the breed of which, in their opinion, deserves encouragement; and that Col. Jesse Putnam, of Danvers, exhibited four pigs, three of them very fine.

PAUL KENT,
JOS. WINN,
STEPHEN ABBOT,
JERE. COLMAN,
} *Committee.*

No. III.

INDIAN CORN AND POTATOES.

The Committee to examine claims, and award premiums, for *Indian Corn* and *Potatoes*, have attended to the duty assigned them, and

REPORT,

That Tristram Little, of Newbury, is entitled to the first premium on Indian corn, having raised 103½ bushels on one acre—fifteen dollars.

That James and Stephen Hathaway, of Marblehead, are entitled to the second premium on Indian corn, having raised one hundred and ninety bushels and seventeen quarts on two acres, eight rods and twenty two links—ten dollars.

That John Dwinell, of Salem, is entitled to the first premium on potatoes, having raised three hundred and ninety eight and a half bushels on one acre—fifteen dollars.

That Col. Jesse Putnam, of Danvers, is entitled to the second premium on potatoes, having raised three hundred and ninety seven bushels on one acre—ten dollars.

JACOB B. WINCHESTER,
for himself and
TEMPLE CUTLER,
} *Committee.*

EXPERIMENTS WITH INDIAN CORN.

Mr. Tristram Little (to whom the first premium was granted) states his comparative experiments of planting in hills and in double continued rows, in the following manner.

He selected two acres of about the same quality, the soil a dark clay mould, which in 1819 received four cords of manure to the acre, were planted with potatoes, and yielded, per acre, about two hundred and eighty bushels.

In May, 1820, he ploughed the whole about nine inches deep, and about the middle of that month began to plant his corn. On one acre he opened double furrows two feet apart, leaving a space of five feet between the double furrows. In these furrows he strewed ten cords of manure, and with a back furrow to each, covered the same. He then dropped his corn, the grains eight inches apart; and then, by turning another furrow, covered the corn; which was thus left in double rows two feet apart.

The other acre he planted in hills, equally distant each way, making twenty-six hundred hills in all; which gave $16\frac{8}{4}$ square feet to each hill—that is, the hills were a fraction more than four feet apart. To this acre he applied six cords of manure, of the same quality with that used on the other acre.

About the 21st of October he finished harvesting his crop. The produce in favour of the hills was as 20 to 19 in the double rows. He remarks, that when corn is thus planted in continued rows, these should run north and south, [that the sun may shine equally on both sides.] His run east and west; and he thinks the north row was not so good as the south, by one third part.

The acre planted in hills received sixteen days labour, including the team: the acre in double rows, two days more.

The Messrs. Hathaways, to whom the second premium was awarded, state, that their field was; in 1817, a common rough pasture—was broken up in 1818, planted with Indian corn, with a common quantity of manure—and yielded a large crop. In 1819, about the usual quantity of manure from privies was ploughed in, and corn planted. It yielded 80 bushels to the acre. In 1820, twenty cart bodies full of the same kind of ma-

nure as in 1819 (that is, night soil from privies) were ploughed in, and corn was planted on the 12th of May, in hills three feet apart, five grains to a hill, carefully distanced. It was hoed twice, but would not admit of a third hoeing, from the crowded state of the field: the first hoeing on the 3d of June, the second about the 23d. It was harvested the 29th of September, and yielded one hundred and ninety-nine bushels and a half of corn. The quantity of land two acres, eight rods and twenty-two links, or nearly two acres and nine rods; giving ninety-seven bushels of corn to the acre.

The preceding two premiums for Indian corn were all that the trustees had proposed to offer. But they think it expedient to notice the claim of Mr. Samuel Day, of Ipswich. His intention appears to have been to plant an acre; but when measured, the piece fell short by seven rods. His product, however, was ninety-one bushels—or at the rate of 95 bushels to an acre. He states that this piece of land, of a kindly soil, was broken up in May, 1819—furrowed both ways, at the distance of four feet seven inches—had ten loads of barn manure put in the hills, (the crossings of the furrows) and five grains of corn to each dropped on the manure, and covered—that the crop was ploughed and hoed three times, and produced forty bushels.—That in 1820 the same piece of land was thus managed: On the 1st of May the hills were split—the ground harrowed, and then ploughed, finishing this operation, on the 2d, in the forenoon; and on the same day he furrowed it deep *one way only*, the furrows three feet seven inches apart. On the 3d, fifteen loads of barn manure were strewed along the furrows. On the 4th, the corn was planted, being dropped on the manure, three grains in a place, at the distance of 18 or 20 inches; the quantity of seed used, one peck. On the 2d of June, two hands ploughed two furrows between the rows, and hoed it. On the 20th, two hands ploughed one furrow between the rows, and hoed it; and July 6th, two hands, in the afternoon, gave it a dressing with their hoes.

In considering this case, the Trustees are of opinion that Mr. Day's experiment merits special notice; and they award to him a premium of eight dollars.

EXPERIMENTS ON POTATOES.

Salem, November 16, 1820.

GENTLEMEN,

I received your favour of the 1st instant, and shall now endeavour to comply with your request respecting the crop of potatoes on an acre of Messrs. Wait and Peirce's land, in Bridge street.

1st. As to "the quality and state of the land in 1819." It was grass land, and was broken up early in December.—Soil black.

2d. "The produce and general state of cultivation, and the quantity and kinds of manure applied to it in that year." The produce had always been English grass, since I was first employed upon it, which was nearly thirteen years ago; and it was never broken up during that time, till last autumn. There was always a good crop. No manure was put on it in 1819.

3d. "The quantity and kinds of manure applied to it in 1820." Nine cart loads, for one yoke of oxen, of barn manure.

4th. "The quantity of seed used, and of potatoes the sort." Twenty bushels of common white potatoes.

5th. "The times and manner of sowing and planting, weeding, tilling and harvesting the crop, and the quantity of labour employed in its production." Four days labour for myself with one yoke of oxen were employed in ploughing twice, harrowing twice, and furrowing. It was planted early in June, in hills three feet (large) apart, a shovel full of dung (from the above nine loads) was put into each hole. Three days labour employed in planting. It was weeded the latter part of June; labour three days. It was ploughed between the hills and half-hilled about the middle of July; labour one and a half days. Crop harvested about the 1st of October in the usual way; labour eight days. The *whole* quantity of labour employed in the production of the crop, (besides that of the oxen) was nineteen and a half days.

6th. "The amount of the crop, to be ascertained by measuring or weighing." Three hundred and ninety-eight and a half bushels of potatoes.

In addition to my own declaration of the foregoing particulars, I enclose to you two certificates showing the measure of the land and of the crop.

With great respect, I am

Your most obedient servant,

JOHN DWINELL.

To the gentlemen composing the committee on corn and potatoes.

I hereby certify that on the fourth day of October, at the request of Mr. John Dwinell, I measured a lot of land by Bridge street, in Salem, owned by Messrs. Wait & Peirce, having thereon potatoes, and staked out one acre, being part of the same lot. JONATHAN P. SAUNDERS,

Sworn Surveyor.

Salem, October, 1820.

We hereby certify that the quantity of potatoes raised this year on the acre of Messrs. Wait & Peirce's land, in Bridge street, which was measured and staked out by Mr. Jonathan P. Saunders, was three hundred and ninety-eight and a half bushels. MOSES PETINGIEL,

HUGH BOYES.

Statement of the cultivation and produce of an acre of land planted with Potatoes in the year 1820, *by Jesse Putnam.*

The land is situated on the eastern side of Ingersoll's hill, so called, in Danvers; the soil is strong; it is very full of small and middling sized stones, so as to much impede the ploughing; and a considerable number of stones are so large that it will be necessary to blow them before they can be removed. The land is moist on the part planted with potatoes.

There is on it a young orchard of apple trees, of different ages, from 12 to 20 years; and there are other apple trees around the lot, which shaded it in many places. The principal object in ploughing was to benefit the trees.

It was broken up in 1819; it was then exceedingly rough, and had been ploughed but once for more than thirty years.

In 1819 it was planted with corn and potatoes, principally with potatoes. There were about four cords of manure put upon it. It was hoed the usual number of times, but on account of being very rough, it was but imperfectly subdued. It yielded about one hundred and forty bushels of potatoes, and about twenty bushels of corn.

In 1820 the hills were split early in the spring, two furrows in a row; afterwards it was ploughed once over. The time occupied in ploughing was one day with three cattle.

It was then harrowed with a common iron tooth harrow. It was furrowed one way, the rows four feet apart; the manure was placed in hills two feet apart, and the potatoes were dropped on the manure, one potato in a hill. Some of the potatoes were cut into several pieces; but those that were not cut yielded the best. There were seven and a half cords of manure put upon the land, six cords of them made in the cellar under the barn; a large proportion of it was made of coarse meadow hay and straw, that were thrown under the cattle for them to lie on.

One cord and a half of the manure was taken from a slaughter house yard. The potatoes planted on that did not yield so much by nearly one half.

The largest proportion of the potatoes planted on this lot were of the red kind, the remainder the common white potato, thirty-seven bushels were planted about the 18th of May.

The potatoes were hoed three times; twice with ploughing and once without; and the weeds almost entirely destroyed. About six days labour were spent in hoeing, together with the time taken up in hoeing round the apple trees. The crop was gathered about the middle of October; the labour of gathering I estimate at nearly three cents per bushel. The number of days work I cannot accurately ascertain, on account of their having been dug at different times, and a considerable proportion by small boys. As to the quality of the potatoes, I know no difference between the value of the red and white: I have

found in the market the price to be the same. For feeding cattle and hogs the red is the most valuable.

The whole quantity produced on the lot as above described was three hundred and ninety-seven bushels.

JESSE PUTNAM.

November 22, 1820.

I certify that I was present and saw measured all the potatoes, raised on the lot of land above described by Col. Jesse Putnam, and that there were three hundred and ninety-seven bushels. DANIEL PRESTON.

Danvers, November 22, 1820.

I hereby certify that I surveyed the field of land before mentioned, as planted with potatoes by Col. Jesse Putnam, on the 19th day of October, and found it to contain one acre and four poles. Also, that there is now growing on this field about fifty young apple trees; and that, in my opinion, the injury arising to the crop, from the shade of these trees, was more than sufficient to balance the extra number of poles above one acre.

JNO. W. PROCTOR.

No. IV.

ON MANURES.

The committee appointed to examine and report on the applications for the premium offered "For a statement of the best mode and means, in the power of farmers generally, and drawn from the claimant's own practice, of increasing the quantity and improving the quality of manures; of their effects when applied to the land, and of the manner of applying them," have considered the two statements which have been presented, one by Benj. T. Reed, Esq. the other by Asa Andrews, Esq. and submit to the Trustees the following

REPORT.

The attention of Mr. Reed in collecting materials for his compost manure, the preparation of his low ground, by draining, for its reception, and the largeness of his products, being about four tons of hay to the acre, including the second crop, prove his management to have been judicious. But the committee observe nothing in the process which was not already known, though too little practised. Some important materials, also, kelp, rockweed and eel grass left by the tide, are within the reach of only a very few farmers, living on the sea-coast. Nevertheless, as the example of such care, diligence and success, may tend to excite others to similar exertions, the committee submit to the Trustees the expediency of publishing Mr. Reed's letter, together with their thanks for the communication.

The like observations the committee think applicable to Mr. Andrews' statement: but his communication being of great length, an abstract of it is herewith presented to the consideration of the trustees.

T. PICKERING,
DAVID GRAY,
DANIEL PUTNAM, } *Committee.*

January 4, 1821.

Marblehead, October 4, 1820.

DEAR SIR,

For about eighteen or twenty years past I have made a practice of making manure from every article of rubbish and filth that was in my way about my house, wharf, &c.

About twenty-two years since, a piece of land came into my possession, containing about two acres of tillage and five acres of low, moist, flat land, with two water courses passing through it, which met and passed off under a town bridge. The passage under the bridge was narrow and small, which often caused from two to four or five acres of my land to be flowed with water for several days together, and a part of it the most of the year, so that the grass was very poor, some years hardly worth

mowing and making, and was often injured in curing, by its being so wet, and for one or two years was overflowed when partly dry.

I kept the land in this situation two or three years, and found the income of the low part of it small and uncertain. I then commenced ditching it, and found it a clay and sand bottom, with from ten to fifteen inches of soil. I first made the ditch through my neighbour's land and the passage under the town bridge as much wider and deeper as circumstances would allow, which then let off the water so as to prevent my land being overflowed either in summer or winter. I then began to cart the fine dirt and earth from the ditch on to the centre of the land, to make it the highest; and all the sods and coarse parts that would not spread and harrow fine, I carried to my manure heap.

At this time I selected a spot near this land, and also near my barn, &c. for making compost manure. It was on the south and east side, near the bottom of a hill. I ploughed and dug off the soil &c. and made a basin about twenty feet wide and eighty feet long, and about a foot or eighteen inches deep, as the hard bottom and rocks would allow. I then commenced carting all sods, green weeds, &c. from the ditches, all my barn manure, dirt, old lime, &c. that was about my house and wharf, and also, whatever could be scraped together, with kelp, rockweed and eel grass, &c. that was left by the tide, as time and opportunity admitted, which was all put into my heap and occasionally shoveled together, and generally at the end of the year was shoveled all over and mixed once or twice and sometimes oftener, and thrown into a ridge.

In this manner I have made in the course of a year, from fifty to one hundred loads of good manure, and some years more.

I have generally carted it on as late in the spring as the frost would allow, to get it on before the ground was too soft, but sometimes I have put it on in July, after mowing, when the grass had got considerably started, and I think I have found the most benefit from my manure when put on at this time.

For the first ten years I made a practice of sowing grass seed pretty freely on the manure after it was spread; such as herd's

grass, red and white clover, and I have thought a great part of the seed took root and increased the crop. About four or five years after this I weighed and sold the hay for one year, which amounted to about four tons to an acre. The hay has been weighed about two or three different seasons since, with an interval of two or three years, and I think it has averaged over four tons per acre including the second crop.

For the last fifteen years I have been improving this tract and some other mowing and tillage land, in all about ten acres, about five of which is high, and has been ploughed and cultivated occasionally and manured from the above mentioned heap.

In the spring of 1819, I built a shed adjoining my barn over my dung heap twenty feet wide and forty feet long, (as I could not have a cellar conveniently) and closed it with a fence, to which I have since chiefly transferred my materials for manure.

This shed carries off much of the snow and water from the roof of the barn, and protects the heap from the sun, wind and rain, and leaves it much stronger and better; and I think a cheap shed might be so constructed over every man's barn windows, where they throw out the manure, to keep the droppings of the eaves, sun, wind, &c. from injuring it, and may be so constructed as to be more convenient and less labour in general than a cellar, and a few hogs will help the manure as well as collect from the green weeds, &c. a part of their food.

With respect and esteem,

Your very humble servant,

BENJAMIN T. REED.

Hon. Timothy Pickering,

President of Essex Agricultural Society.

Abstract of the Communication of Asa Andrews, Esq. on Manures.

Mr. Andrews remarks, that the barn yard should be proportioned to the farmer's stock, and *dishing* in its form. He considers one year to be necessary in going through the process for mak-

ing manure. When in autumn the yard is emptied of manure, he would fill (bed) it with the vegetable matter or substance of salt marsh, or fresh meadows, or the earth from low places (such as are found on many farms,) or head-lands, and scrapings of ditches; and over this bed lay straw, ordinary hay, bottom stalks of corn, thatch and weeds—any or all of them, as they can be obtained. And from the time the stock are put to hay, until they are turned out to pasture in the spring, they should not go beyond the limits of the barn yard; within which they should be supplied with water. [Then their dung and urine will not be wasted in the roads, or uselessly scattered over the fields, while they are picking up a pittance of miserable, sapless fog, or dead grass.] The cattle are to be kept in the barn yard at night, during the summer, or season of pasturing.

When in autumn, manure is carted to the fields, and dropped in heaps, to lie until the ensuing spring, those heaps should be covered with earth, to prevent loss by washing rains and evaporation.

In applying his manure, in the spring, Mr. Andrews mixes the old with the new, for grass-land broken up for planting: but if the land is already in a state of tillage, he spreads the new manure (winter dung) and immediately ploughs it in; and puts the old manure in the hills.

Having on his farm a quantity of wet meadow land, producing only coarse grass, he ditched and drained it; and then, without ploughing, spread his compost manure upon it, and sowed herd's grass seed. Under this management, he was able to cut from two to three tons of good hay to the acre. He gives this land a top-dressing of compost manure every other year. The soil of this meadow is rich earth lying on a clay bottom. Mr. Reed's productive meadow has a like soil, ten to fifteen inches deep, lying on a close bottom of clay mingled with sand.

When Mr. Andrews ploughs his grass up-land, he puts on eighteen or twenty loads of manure to an acre: and harvests from each acre about sixty bushels of corn, and vegetables in proportion.

From twenty head of cattle, two horses, and his swine, with the materials collected and used in the process, as above de-

scribed, he makes annually from 220 to 250 loads of manure, each load containing about forty-five bushels.

THE DAIRY.

To the Trustees of the Essex Agricultural Society.

GENTLEMEN,

The committee appointed to consider the claims for the premiums on Butter,

REPORT,

That Mr. Joshua Lovett made upon his farm, in Beverly, from the milk of five cows, four hundred and four pounds of good butter, in the year A. D. 1820, between the 20th day of May and the last day of October.

The cows were kept in a common pasture from the 20th of May until the 1st of October, and afterwards in fall feed, and were fed with the thinnings of half an acre of carrots, and the green topstalks of an acre of corn.

The quantity of butter produced from these cows, between the 1st day of May and the last day of November, in the same year, was five hundred and two pounds; and there was made within that time, from the milk of the same cows, seven hundred and fifty pounds of cheese.

This is the only claim which has been made for a premium on butter. Your committee are of opinion that Mr. Lovett is fairly entitled to the first premium on the article, inasmuch as the object of this society is to encourage judicious efforts in agricultural improvements.

THOMAS STEPHENS,
Chairman.

Salem, January 10, 1821.

ON THE PLOUGHING MATCH.

Report of the Committee on the Ploughing Match at Topsfield, October 5, 1820.

Salem, January 6, 1821.

SIR,

The committee agreed to award the first premium to the Hon. Timothy Pickering, on account of the superior performance and superior utility of his plough.* They think also that great credit is due to Gorham Parsons, Esq. for the performance by his plough from his Byfield Farm, and award to him the second premium.

In behalf of the Committee,

PAUL UPTON.

To Frederick Howes, Esq. Secretary of the Essex Agricultural Society.

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* This plough was made by Henry Burden, at Utica, in the State of New-York.

PREMIUMS,

OFFERED BY THE

ESSEX AGRICULTURAL SOCIETY,

FOR 1821.

The Trustees of the Essex Agricultural Society, to encourage improvements in the husbandry of the county, offer the following

PREMIUMS.

AGRICULTURAL EXPERIMENTS.

I. *MANAGEMENT OF A FARM.*

For the best management of a farm, in its tillage, mowing and pasturage: the quantity of land appropriated to each—the manner of making, increasing, preserving and applying manure—the respective crops and products—and the management of the live stock—to be detailed; . . Thirty Dollars.

For the second best, . . Twenty Dollars.

II. *GREEN CROPS FOR COWS.*

For the best experiment with any kinds of green crops, (turnips and cabbages excepted, which hurt the flavour of milk) by which the same cows, not fewer than four, shall be kept in milk, with the least diminution of the quantity yielded while feeding in their common pastures at midsummer, until the first of October; the cows to be full fed with such green crops, in addition to their common pasturage: Thirty Dollars.

For the second best, . . . Twenty Dollars.

☞ To render this experiment satisfactory, the milk yielded at midsummer (June 21st) must be weighed; and afterwards

once in every two weeks, until the first of October, and regularly set down. Each green crop used, and its effect on the quantity of milk, (and on its quality too, if there be any manifest difference) is to be specified.

III. *INDIAN CORN AND OTHER CROPS.*

For the greatest crop of Indian corn on one acre—
For the greatest crop of potatoes on one acre—
For the greatest crop of carrots on half an acre—
For the greatest crop of mangel wurtzel on half an acre—
For the greatest crop of ruta baga on half an acre—
which shall severally be raised with the least expense of labour and manure—for each, . . . Fifteen Dollars.

For the second greatest crop of each, and for each, Ten Dollars.

For the most valuable crop, according to the labour and manure bestowed upon it, which shall be raised on one acre, which crop shall consist of Indian corn, and potatoes, and bush beans, or any two of them, to make a mixed crop, in alternate rows or hills, and which shall be of value at least equal to the best crop of Indian corn, for which the first premium shall be awarded, ... Fifteen Dollars.

For the second most valuable mixed crop, and which shall be of value at least equal to the second best crop of Indian corn, for which the second premium shall be awarded, Ten Dollars.

For the best crop of barley on one acre, Ten Dollars.
For the second best, . . . Eight Dollars.

IV. *SUMAC.*

To the person who shall prove most satisfactorily, from experiment, on not less than half an acre, that either species of sumac, (rhus) an article extensively used by the manufacturers of morocco leather, can be profitably cultivated in this county, the proof to be given in the autumn of 1823, Thirty Dollars.

V. *THE DAIRY.*

For the greatest quantity of good butter, in proportion to the number of cows producing it, (not fewer than four) made on any farm, from the 20th of May to the 6th day of October,
Fifteen Dollars.

For the second greatest quantity, . Ten Dollars.

VI. *CIDER.*

For the best cider, the pure juice of the apple, which shall be made in the present year, not less than four barrels, a sample of it not less than ten gallons, to be produced at the Cattle Show in 1822, ... Ten Dollars.

For the second best, ... Five Dollars.

The cider to be kept in casks.

LIVE STOCK.

For the best pair of working oxen, not less than five years old, which shall be best trained for labour, be quickest in step, and in full working plight, . . . Fifteen Dollars.

For the second best, . . . Ten Dollars.

For the best pair of fat oxen, which shall be fattened at the least expense, ... Twenty Dollars.

For the second best, . . Ten Dollars.

For the best bull, not less than one year old, raised in or brought into the county, and there kept four months prior to the first of October, 1820, on satisfactory assurance that he shall be kept for use in the county twelve months after that day,
Fifteen Dollars.

For the second best, ... Ten Dollars.

For the third best, ... Five Dollars.

For the best milch cow, . . Fifteen Dollars.

For the second best, . . . Ten Dollars.

For the third best, ... Five Dollars.

For the best boar, not exceeding two years, and not less than five months old, ... Eight Dollars.

For the second best, . . . Five Dollars.

For the best breeding sow, . . Eight Dollars.

For the second best, . . . Five Dollars.

For the best litter of weaned pigs, not fewer than four, nor less than two months old, . . . Six Dollars.

For the second best, . . . Four Dollars.

FOREST TREES.

For the best plantation of white oak trees, not less than one acre, nor fewer than one thousand trees per acre, to be raised from the acorn, and which trees shall be in the best thriving state on the first of September, 1823, Thirty Dollars.

For the second best, . . . Twenty Dollars.

For the third best, ... Fifteen Dollars.

For the best plantations of locust trees, and of larch trees, each of not less than one acre, nor fewer than one thousand trees per acre, to be raised from the seeds, and which trees shall be in the best thriving state on the first of September, 1823, for each and either, . . . Twenty Dollars.

For the second best, . . . Fifteen Dollars.

For the third best, . . . Ten Dollars.

For the best plantations of white ash trees and of hickory trees (the latter generally called, in Massachusetts, *walnut*) each of not less than half an acre, nor fewer than five hundred trees per half acre, to be raised from the nuts and seeds, and which shall be in the best thriving state on the first of September, 1823,—for each and either, . . Fifteen Dollars.

For the second best, ... Ten Dollars.

For the third best, ... Eight Dollars.

The larch tree is a native of Massachusetts and Maine, and doubtless of New-Hampshire and Vermont. It is generally known by the name of *hackmatack*—perhaps the Indian name. It is growing in various parts of this county, commonly in low and moist grounds. The European larch is plainly different in form, and more beautiful; its leaves are of a deeper green, and

its cones three or four times as large. The wood of both is extremely durable. The value of our larch from Maine is already well known to some of our ship-builders.

To entitle a claimant to any premium under the head of Agricultural Experiments, the following particulars must be described in writing, with a declaration by the claimant of their truth: viz.

1. The quality and state of the land in 1820.
2. The product and general state of cultivation, and the quantity and kinds of manure applied to it in that year.
3. The quantity and kinds of manure which shall be applied to it in 1821.
4. The quantity of seed used, and of potatoes the sort.
5. The times and manner of sowing and planting, weeding, tilling and harvesting the crop, and the quantity of labour employed in its production.
6. The amount of the crop, to be ascertained by measuring or weighing.

The object of this institution being to promote valuable improvements in husbandry, it will be the duty of the Trustees to withhold premiums in cases falling short of that object. At the same time they will be disposed to encourage every judicious effort to make improvements, although not crowned with success; as such efforts may open the way to those which shall be really valuable.

EXPLANATORY OBSERVATIONS.

The Trustees have thought it expedient to subjoin to the list of premiums the following explanatory observations.

In considering how best to apply the funds of the society, they were naturally led to inquire, in what objects of husbandry are improvements most wanted, to enlarge our products, either by superior modes of management and culture, or by the intro-

duction of better domestic animals, and of plants either not at all or not generally cultivated?

In old farms, such as all are in Essex, whose native fertility has long since been exhausted, MANURE must constitute the *essential means* of restoring and increasing their productive powers. Consequently, to increase the quantity and better the quality of all kinds of manure, within the reach of our farmers, merits the first attention, as the basis of all improvements. There are some substances not comprehended in the term *manure*, in the common sense of that word, which nevertheless, when mixed with the soil, cause it to yield greater crops; such are clay, lime and other calcarious matters, and plaister of Paris.

But however abundant may be manures, their most effectual operation depends on the manner of using them, and on the condition and management of the land to which they are applied.

The design of our institution being *universal improvements* in the husbandry of the county, the Trustees are of opinion that the excitement of premiums should be addressed, as far as practicable, to the industrious and enterprising occupants of small as well as of large farms; and be extended, in the progress of improvement, to every article demanding the increased attention of the husbandman.

Our common permanent pastures do not yield a sufficient bite of grass for cattle earlier than the 20th of May; and by the middle of August—sooner, if the season be dry—they fail to such a degree, that cows rapidly fall off in their milk, unless the deficiency be supplied by other kinds of green food. What these are, within the power of every industrious farmer to provide, it is hoped will be satisfactorily shown, by the claimants for the premiums offered on this point.

The products of butter will be decisive of two important points—the *goodness* of the *cows*—and the *sufficiency* of their *food;* and will encourage farmers to improve their breeds of milch cows, by purchase or by raising them, and to provide ample supplies of proper food.

By an act of the legislature, passed on the 20th of February, 1818, "for the encouragement of agriculture and manufactures," it is made the "duty of every incorporated agricultural society, to offer, annually, such premiums and encouragement, for the raising and preserving oaks and other forest trees, in such manner, and on such terms, as to their discretion shall seem best adapted to increase and perpetuate an adequate supply of ship timber, within this Commonwealth."

In compliance with this requisition, the premiums for raising oaks and other forest trees are offered. Small plantations only are proposed, because the subject, in America, is perfectly new; although in Europe the practice of *planting* (the term appropriated in England to the raising of forest trees) has long been familiar. There the seeds are sown in beds, (like seeds in gardens) thence removed to nurseries, and from the nurseries to the grounds where they are to rise into trees. The emolument to be derived from *planting*, for the production of *timber*, is at such a distance, probably beyond the life of the planter, as to deter most men from making the attempt: for few, very few, are actuated by the generous principle, that "It will do somebody good." Yet, as men generally wish to acquire and leave property for their offspring, it may be questioned whether in any district, so bare of timber as Essex, farmers could better consult the permanent interests of their children, than by *planting*. Grounds so rough and rocky as to be unfit for tillage can in no way be so profitably improved. Nor, indeed, is some profit from planting very remote. That forest trees may rise straight, and to heights proper for timber, they must be set, at first, many times as thick as will finally fit them for timber. Hence their thinnings will, in a few years, furnish useful wood; white oaks, hickories, ash, and perhaps the larch, for hoops, and all of them, at larger growths, for fuel.

These hints are thrown out to excite reflection on this very important subject; and to induce at least the ablest farmers to commence the work of *planting*. The Trustees hope there will be many competitors for the offered premiums. Any who shall propose to make plantations, will, on their application, be

furnished by the Trustees with the best information they can obtain on the subject; unless a publication (which they contemplate) should supersede the necessity of individual applications.

In proposing premiums for products obtained with the least expense of labour and manure, the Trustees have in view an improved culture of our farms, by the exertion of superior skill and industry, and better tillage to supply the place of more ample manuring. To effect this better tillage, the plants cultivated must be set at distances which shall admit the free use of the plough.

The fattening of oxen at the *least expense* will of course include the *shortest time:* for it is well known that all domestic animals lay on fat in proportion to the quantity and quality of the food they are disposed, or can be induced, to eat, *when fed to the full.* Hence so to feed them is the truest economy, when fatting them is the object.

A premium is offered for mixed crops of corn, potatoes and beans, on the supposition that the crop of corn may not thereby be greatly diminished in quantity, or not in proportion to the value of the potatoes and beans, or of one of them. The corn plants standing far apart will not injuriously shade the potatoes and beans; while the vines of these will cover the intervals of the corn from the scorching rays of the sun. And a *covering* crop is deemed less hurtful than any other—some have even been thought to be beneficial. Dr. Eliot, of Connecticut, in his fifth Essay on Field Husbandry, published so long ago as the year 1754, thus writes—"Peas are found to make land mellow, to enrich and so well to prepare it for wheat, that I have many times known farmers to invite others who had peas to sow their land, without paying any rent, merely for the advantage it would be to their crop of wheat." The Doctor assigns the following reason. "Peas make a shade; where the land is shaded, the air will be condensed; and, consequently, make room for the rushing in of more air, so that in this shade there will be a greater lodgement of nitrous salts, [or whatever in the air, which is a compound substance, tends to fertilize the earth] and consequently the land will be made rich." "The air"

(says another writer) is the chief instrument which nature makes use of to enrich the earth."

A premium is offered for the best cider, in the hope that many farmers may be induced to make that a pleasant liquor which is commonly harsh and sour. Some few make cider which is smooth and comparatively sweet to the taste. With equal care, all may do the same. Such cider would not only be more pleasant, but doubtless more wholesome, and it would lessen the consumption, and ought eventually to supersede the use, of spirituous liquors. Cider is generally made without separating the ripe from the unripe, and the rotten apples from the sound ones; and no measure is used to check its violent fermentation. Hence the meagre and austere cider almost universal in New-England. Were grapes, now producing the finest wines, managed as we do our apples, their juice would yield liquors as little esteemed as our cider. The following intimations for making good cider may be useful.

1. Let the apples hang on the trees until fully ripe. Such as are then *mellow* should be at once committed to the mill and press. Such as are *hard* should be laid in heaps not more than ten or twelve inches thick,* until they become *mellow*. For apples never attain their highest flavour until mellow.

2. Separate the rotten from the sound apples; for the latter only can produce good cider. Suppose all the rotten apples were to be selected, ground and pressed by themselves, the juice would be alike unwholesome and disgusting, and be thrown away. Now, in proportion as rotten apples are ground up with the sound ones, will the cider be injured.

3. Not a drop of water should be put to the cider, not even to wet the straw used in making up the cheese. For it will require the whole strength of the pure juice to preserve it in casks through our hot summers, in the coolest cellars. The straw should be perfectly clean and sweet.

* Many of the most experienced cider makers in New-England house their apples before grinding by laying them on the floor of the cider house, or on the barn floor, taking care to move them often, to prevent their heating.

4. Of the great variety of apples in most orchards, those should be put together in the same heaps which appear alike mellow, or likely to become mellow, at the same time.

5. Every farmer knows, that if his casks are musty, or have a sour smell, they will impart an ill flavour to the cider put into them. Such casks should be cleansed with boiling water. Perhaps few have adverted to the propriety of thoroughly cleansing the cider mills, vats, tubs, and other utensils; but neat and finely flavoured cider is not to be expected without that precaution.

6. The most difficult part of the process in making cider, is, so to regulate the fermentation as to preserve a sufficient degree of sweetness. If suffered to take its own course, the fermentation will continue long, and the cider be changed into a harsh, sour and pale coloured liquor. To prevent this, the cider must be drawn off: and the time of doing it is, when the lighter parts of the pomace have risen to the top, forming a brown coat or scum on its surface, and when the heavier parts have sunk to the bottom. This state of the cider would be clearly manifested, if a quantity were fermented in an open vessel. In four or five, or more days, according to the warmth or coolness of the air, such a separation of the parts of the pomace would appear. Just when that brown coat cracks and begins to show a white froth, is the time for drawing off the cider, taking care that no portion of the scum or lees run out and mix with it. After this, some fermentation may again take place, and require a second, and perhaps a third racking. If the cider be fermented in casks, these should want a gallon or two of being full. There will be no harm done by exposing so much surface to the air, for it will be soon covered with the brown pomace; and then too the precise time for racking will be seen.

After apples are ground, the pomace should remain exposed to the air, in open vats or tubs, about twenty-four hours, before it is made into the cheese to be pressed. This is known to give not only a better colour, but to add to the sweetness of the cider.

An eminent naturalist and practical farmer, in the greatest cider county in England, states, that when the rind and pulp of

apples are green, the cider will always be thin, weak and colourless; and when these are deeply tinged with yellow, it will always possess colour, with either strength or richness. And again, that such apples as are yellow, or yellow intermixed with red, are alone capable of making fine cider.

TIMOTHY PICKERING, *President.*

F. HOWES, *Secretary.*

January 10, 1821.

ARRANGEMENTS

FOR THE

CATTLE SHOW AND PLOUGHING MATCH,

FOR THE

COUNTY OF ESSEX.....IN THE YEAR 1821.

1. It is expected that the society, at their annual meeting at Ipswich, on the nineteenth day of February next, will determine at what place the cattle and other live stock, to be presented for premiums, and the ploughing match, shall be exhibited.

2. The Trustees will timely appoint the necessary committees to examine and report on the claims for premiums, and assemble with them at the place of exhibition, on Thursday, the eleventh day of October next, at nine o'clock in the morning; at which time, all claims for premiums must be presented and entered. The committees will then inspect all the live stock, and any other articles which may be subjects of premiums, and prepare their reports thereon.

3. On the next day, at ten o'clock in the morning, the trial of working oxen will be made; and be followed, at eleven o'clock, by the ploughing match. At twelve o'clock, an address, on the important subjects of our institution, will be delivered, by a member of the society.

4. At one o'clock, the members of the society will dine together; and at two o'clock, the reports of the various committees will be read; and the premiums awarded be immediately paid to the successful candidates.

5. The live stock and any other articles which may be exhibited for premiums, on Thursday, must remain until the next day at noon, to be viewed by the members of the society.

6. Decisions on claims for premiums on Indian corn and root crops must necessarily be postponed, because these may not be generally harvested by the time of the cattle show. But all such claims must be sent to the secretary of the society, by the twentieth day of November next, sealed up. On that day the papers will be delivered to the committee appointed to examine and report on such claims; and after that day no claims will be admitted. The premiums awarded will be immediately paid by the treasurer.

INTIMATIONS

ON THE

RAISING OF FOREST TREES.

In a preceding page, the common English practice is mentioned of sowing the seeds in beds, removing the seeding plants to nurseries, and thence to the ground where they are to receive their full growth. But some English writers contend, that Oaks in particular attain the quickest and best growths, when they spring from the sown acorns, and are never transplanted: because then the young trees receive no check from the shortening of the tap root, or the loss of the fibrous roots proceeding from it. Where the land to be planted admits of culture with the plough, this doubtless is the most eligible mode. But the young oaks will not generally rise more than five or six inches the first year, although the tap root may descend to the depth of from one to two feet. The second year's growth will also be small; after which, the removal of the plants

to the nursery should not be delayed. But this removal may be dispensed with, by cutting off the tap roots with a long spade ground to a sharp edge, and thrust, in a sloping direction, under the plants in the rows, as deep as possible, so as to preserve eight or ten inches of the tap root. This is sometimes practised in England; and, it is presumed, will not materially check the growth of the trees. For this operation, it is obvious that the seed-beds must be a fine loam, free from stones or gravel.

In whatever way the plantation shall be made, the ground in which the acorns are sown should be in a state of perfect tillage, and well cleaned by some tillage crop or crops, admitting the plough and hoe, and where no weeds have been suffered to ripen their seeds; which will save much labour in the cultivation of the young plants, especially in the first and second years. The deeper the ground is ploughed or dug for receiving the seed, whether in the nursery beds or in the field, the better the trees will thrive; especially by being more secure from the effects of drought. The acorns should be collected from the most thrifty trees, sown in drills, or channels, about two inches deep, and covered, with some pressure of the earth upon them. If dropped in a seed bed, the acorns should be distant not more than an inch and a half, or two inches, in the drill. But if planted in the field where it is intended the trees should grow without any removal, it may be an eligible way (after the ground has been brought into a fine tilth, and harrowed smooth) to mark it out by cross furrows, distant four feet from each other, and to plant four or five, or more, acorns at the intersections of the furrows. The plantation may then be cultivated with as much ease as a field of Indian corn. And such cultivation is essential, for preserving the oaklings from being smothered by weeds, and for encouraging their growth. Every farmer knows the effect of tillage on young apple orchards. Nuts for a plantation of hickory (walnut) may be planted in the same manner as acorns: and both must be collected in autumn, and then planted, or preserved in dry sand until the succeeding spring. After two years growth, all but one, and that the best, of the young trees should be removed from each spot.

The seeds of the locust tree must be gathered in autumn, and preserved till the ensuing spring, and sown at the time of planting early beans. Every locust seed is a small bean, and if sown on *fresh*, *moist* earth, will vegetate as surely as a bean, and grow, in a tolerable soil, from two to four feet high the first year. Doubtless it will be best to sow these, at once, in the field where they are finally to grow, as above suggested for acorns: pulling up, at the end of one year, all but one, the most thrifty, in each spot. The supernumeraries, thus extracted, may be set out to form an additional plantation.

Larch seeds are found under the shells or scales of the cones. These must be gathered early in March: for if suffered to remain longer on the trees, and warm and dry weather succeed, the scales will rise, and the seeds fall out. If beds be prepared for larch seeds, and the cones spread over them, (the cones may touch one another) the scales will rise, and upon removing the cones with a fine toothed rake, the seeds will fall out. These may then be covered with fine earth, from a quarter to half an inch deep. As the larch trees, growing in this country, are found in low and moist grounds, it is probable that the seeds will vegetate with more certainty in beds prepared of such a soil. After the cones have been raked and picked off of the first bed, they may be spread over a second, and furnish an adequate supply of seed. By moving a few in the first bed, it will be seen whether a sufficiency of seeds have dropped out. A week, ten days, or two weeks, according to the weather, may be required for the discharge of the seeds, on each bed.

Trees growing four feet apart every way, will give 2722 to an acre: and if so great a number grow at that distance, they will rise with straighter, cleaner stems. Their thinnings from time to time will turn to good account.

AN

ADDRESS,

TO THE

ESSEX AGRICULTURAL SOCIETY,

AT THEIR

FIRST CATTLE SHOW,

AT

TOPSFIELD,

OCT. 5, 1820.

BY ANDREW NICHOLS, ESQ.

"————————Venerate the plough,
"And o'er your hills, and long withdrawing vales,
"Let Autumn spread his treasures to the sun,
"Luxuriant and unbounded." THOMSON.

SALEM:
PRINTED BY JOHN D. CUSHING.
1821.

ADDRESS.

Agriculture, the most ancient, the most necessary of Arts, has engaged the attention of the strongest and most enlightened minds, and employed the pen of the ablest of writers; and still the subject has never been, can never be, exhausted. The interests of Agriculturalists are inseparable from the permanent prosperity of every nation, and closely connected with the welfare of every individual of the human race. On Agriculture all are directly or indirectly dependent for the means of subsistence, and towards its improvement all should be willing to contribute. This consideration alone has induced me to appear before you. Yet it is with no small degree of diffidence, that I presume to address this numerous and highly respectable audience, composed as it is of many, whose scientific and literary acquirements are far superior to my own, and of a more numerous collection of *real farmers*, who I well know place but little confidence in the essays of professional men, on a subject with which they may be supposed to have little, if any, practical acquaintance. I was however bred a farmer, and have been personally acquainted with the toils, pleasures, hopes and disappointments, of an agricultural life. I feel a strong attachment to the occupation of my ancestors, who from the first settlement of this country have tilled with their own hands the soil of Essex. A regular course of medical studies embraces much that tends to explain the principles of fertility in soils, the phenomena of vegetation, the philosophy of Agriculture. Influenced by these considerations, and confiding in your candour to excuse unintentional errors, I shall without further apology offer such remarks as seem to me worthy your attention on this occasion.

Industry is a most ennobling trait in the character of any class of men. In the pursuit of agriculture it is absolutely necessary

to success. But industry is not the only virtue, that the cultivation of the earth promotes. Piety, sobriety of conduct, simplicity of manners, hospitality, friendship, and conjugal love, are more frequently found in all their purity among practical farmers than among other orders of men. For this there are natural causes. The husbandman's employment in the open field, where all is sublime, beautiful and harmonious around him, exercises both the body and mind in a manner most conducive to health and happiness. While sowing his grain, and nurturing his tender plants, he must be stupid indeed not to feel his dependence on the beneficent Parent of Nature, for the warming sun and refreshing showers, without which not a blade of grass can be made to vegetate, or an ear of corn be brought to maturity. "He is independent of popular favour, and exempt from those corroding cares, those mortifications, disappointments, jealousies and responsibilities, which plant thorns in the pillow of the professional man. The sources of ill will and secret envy among other professions, where one man's loss is another's gain, have no existence among men employed in Agriculture." Free from the anxiety attendant on the risks inseparable from mercantile engagements, he unites his fortunes with her's on whom were placed his earliest, his tenderest affections; and sees, without regret, an increasing family, looking to him for bread, instruction, and protection.

An Agricultural life is the natural condition of man. He was placed in the garden of Eden *to dress* and to *keep it*. When driven from paradise, he was commanded *to till the ground from which he was taken*. And wherever the great body of the people have yielded a willing obedience to this command, and not sought to supply their wants by other inventions, the earth has ever yielded them the necessaries of life in abundance. It is astonishing to reflect on the immense population which a small territory well cultivated will sustain. "Egypt once contained forty millions of inhabitants, and was then able to supply surrounding nations with corn. A few years since, when the same territory contained only three millions, a French army of twenty-five thousand men found it difficult there to subsist. Sicily, when it contained in the small territory of Syracuse alone four

times the amount of the present population of the whole island, was deemed an inexhaustible store-house of corn for others." These examples show, that the earth is productive in proportion to the labour judiciously bestowed upon it. They are cited from times when that more productive vegetable, the potato, which now furnishes almost the whole food of thousands of families in Great-Britain, was unknown. Is it therefore too much to suppose, that when properly managed "every rood of ground *will maintain* its man"?

If the soil can be rendered so productive, it must be obvious, that the agriculture of this county is susceptible of great improvement.

What are the causes that have hitherto retarded this improvement? Among these, are, I conceive, the prejudices that exist among different classes of men engaged in agriculture. Speculative and practical farmers have ever been at variance. By speculative farmers, I mean those who have engaged in husbandry, either for amusement or from patriotic motives, without depending on it for the means of subsistence. The former are generally too fond of pursuing visionary schemes, and the latter frequently too much wedded to old practices to adopt the most obvious improvements. The speculative is apt to consider the mere practical farmer as a narrow-minded, obstinate, perverse man, who is determined to plod on in the path his forefathers had trodden; and the practical farmer in his turn laughs at the other as a visionary, who, mistaking dreams for realities, pursues plans that lead to disappointment and ruin.

These prejudices are generally carried too far, and are much to be regretted, although there is frequently some foundation for them on both sides. They too often prevent that social and free intercourse which would prove highly advantageous to both. The practical farmer, who has had but little opportunity to become acquainted with knowledge derived from books, or with practices, that have been found most successful in other places, would derive many useful hints from the speculative farmer, who might often be saved much useless expense by the experience and observation of the other. In this society both these classes of agriculturalists are uniting their efforts. May we not

confidently hope that the result will be the extinction of these prejudices, and the rapid diffusion of useful knowledge, among all classes of agriculturalists?

Another cause, which has hitherto retarded improvements in agriculture, is the low estimation in which the employment has been held. "In the most flourishing and happy era of the Roman Republic, the cultivators of the soil were esteemed a superior class to merchants and manufacturers." This was probably one cause of the great success in agriculture, which at that time enabled "the small vale of Campania alone (not one twentieth of the whole) to furnish subsistence for more people than the whole inhabitants of Italy now amount to." It is not however good policy for any nation to make invidious distinctions among the several classes of her citizens. The honest and industrious professional man, artist, mechanic, merchant, or manufacturer, deserves well of his country.

"Honour and shame from no condition rise,
"Act well your part, there all the honour lies."

But if it be a fact that husbandry has been, in this country, by many, considered a mean or servile employment, it becomes the duty of every good citizen to endeavour to raise its reputation to the rank it ought to hold, a rank inferior to none in society. Nothing would have a more direct tendency to improve agriculture, and raise its reputation, than a more general attention among farmers to those sciences, that explain many of its principles and operations. "Knowledge is power." The man, who understands philosophically the operations in which he is employed, will perform them with much greater ease, than one who has only a mechanical acquaintance with them. It is granted that practice alone is much better than theory without practice, but it is the union of both in the same individual that constitutes the most accomplished and successful operator.

The opinion has been too prevalent among farmers, that the only learning beneficial to those, who are to get their living by cultivating the soil, is to be able to read well, write well, and answer with facility questions in the most useful rules in arithmetic. It is acknowledged, that with these acquisitions only

there are many who have distinguished themselves both as agriculturalists and citizens. But it does not follow that the same men would not have made greater improvements in husbandry, and extended their usefulness as citizens, if they had also studied more thoroughly the English language, the mathematical sciences, geography, astronomy, chemistry, natural philosophy, and the several branches of natural history. These and many other branches of science and literature enlarge the views, strengthen the mind, and greatly multiply objects which afford pleasing reflections. They are therefore peculiarly calculated to beguile the cares, and increase the happiness, of labouring men. The mind of the naturalist, while at work in the field, is continually feasted by the operations of nature going on around him. In every cloud that passes over his head, in every fossil turned up by his plough, in every insect that crawls the earth, in every plant that vegetates or blossoms, he reads a story containing truths the most interesting, beauties that never cease to please, and sublimity that fills the mind with admiration. The mathematical sciences, natural philosophy, and chemistry, may be so applied to the art of husbandry, as to render its principles less mysterious, its operations more easy, and success more certain.

It will perhaps be objected, that such studies tend to destroy that relish for manual labour, which is essentially necessary to success in agriculture, for

> "He, who by the plough would thrive,
> "Himself must either hold or drive."

If this be the case, it is owing not to the knowledge acquired, but to ambitious and erroneous notions at the same time imbibed. These notions are derived either from the injudicious complaints, so frequently uttered by farmers themselves, in presence of their children, of the hardships of their lot when contrasted with the supposed ease and rapid acquisition of riches and honours by professional and mercantile men, or from the conversation and enthusiastic expectations of those devoted to such pursuits with whom they associate at academies and other literary institutions. If, instead of such erroneous notions,

youth were more generally taught, that the cultivation of the earth is a noble employment—that the farmer's loose home-made working dress, it being particularly appropriate to his employment, is as respectable as the more costly apparel worn by those engaged in less laborious employments, and much more so than the fantastic trappings of modern dandies, whether they are seen spending their time in most fatiguing idleness, employed behind the counter, or crowding the avenues that lead to either of the learned professions; if proper pains were taken to convince them, that, although in agricultural pursuits they cannot calculate on becoming rich, industry and frugality will ensure them competence; while, of those who devote themselves to professional or mercantile employments, some may, by industry, the possession of talents peculiarly fitted for the purpose, or good fortune, become honourably and honestly wealthy; but many will either be reduced to want, or owe their prosperity to means at which the honest farmer would revolt, the arts of *quackery*, *chicanery*, or *swindling!* Then we should oftener see the scholar return to the plough, apply his science to the improvement of his favourite art, raise the reputation of agriculture, preserve the purity of his morals, and become in fine a man to whom in times of danger or distress the public might look for counsel and assistance, as to a patriot of sound judgment, without partiality, without fear, and without reproach. It is not the labours and privations of an agricultural life, that deter literary and scientific men from engaging in it; but the belief, that it would be voluntarily sacrificing all claims to distinction, and burying their talents in the shades of obscurity. For such men readily engage in military services, a seafaring life, or the most fatiguing travels, with the utmost ardour, patience, and perseverance.

The present enlightened governor of the state of New-York has hinted, in an address on this subject, the establishment of agricultural schools for the purpose of improving the art of husbandry. And, is it altogether visionary to suppose, that the best interests of this county would be promoted by the establishment of an agricultural academy, where such studies, as are best calculated to make accomplished and scientific farmers

might be advantageously pursued, and the students required by turns to labour one or two days or half days every week, with an experienced husbandman and gardener, who should be selected to manage a farm connected with the institution. Such a seminary, well endowed and properly managed, would furnish more useful instructers for town schools in agricultural districts than can now be obtained. It would answer all the purposes of a pattern-farm, rapidly disseminate knowledge of the greatest improvements in the art, and produce the most accomplished farmers and useful citizens.

Another cause of the slow progress that has been made in the art of husbandry is the small profit which farmers generally realize from their labours. This has hitherto induced many of our most enterprising citizens to seek more lucrative business, and tended to discourage those who have continued to cultivate the soil. To render agriculture, therefore, more profitable, as well as more honourable, is a primary object with agricultural societies. How can this be accomplished? By practising, among other things, on the following fundamental principles of husbandry.

1. Cultivate no more land than can be thoroughly ploughed, well manured at once, and kept free from weeds.

2. Never keep land many years under the same crops.

3. Never lay land into grass, except it be well prepared, and in a very rich condition.

Suppose for example you possess a field of arable land, containing eight acres; how can it be most advantageously managed? According to the author who lays down the foregoing rules, plough up annually, in autumn, two acres. Let it be cross ploughed, harrowed, highly manured, planted with corn or potatoes, and well tended the following spring and summer. In the spring next following, plough it twice, and sow it with grain and clover. In this way, by keeping the land in rotation, one year under Indian corn or potatoes, one year under English grain, and two years under clover, it would produce the most abundant crops, and be continually growing better, as the large tap roots of the clover especially would greatly ameliorate and enrich the soil. After going through this routine several times,

the land would be in an excellent condition to lay into grass, thus to remain till another portion of land could be treated in the same manner. Keeping in view these principles, every farmer can readily apply them to other crops, which it is therefore unnecessary to mention.

On mature reflection, I presume it must be generally admitted that one of the greatest and most frequent errors in the management of farms in Essex, is dissipating both labour and manure, by attempting to cultivate too much ground.

By improved management, the same quantity of produce as is now obtained might be raised, with the same manure, on half the land, with two thirds the labour. One half of the land and one third of the labour might therefore be devoted to other crops, the whole of which would be clear gain.

There is a specious objection to improvements in agriculture, often suggested by practical farmers, namely, "that in the same ratio that crops are increased, their value is diminished, for the market is already abundantly supplied." Admitting this to be the case, are there no other fruits, esculent vegetables, and raw materials for exportation or domestic manufacture, other than those which are now generally cultivated, which our soil and climate will produce, and towards which the attention of farmers may be profitably directed?

In taking a survey of the county of Essex, it must I think be admitted, that we are deplorably deficient in gardening, and in the cultivation of fruits which are justly ranked among the most elegant comforts of life. With very little expense of time and labour, it is in the power of every owner of a farm to surround his habitation with the most delicious fruits, to furnish a rich desert for his table at all seasons of the year, and likewise send large quantities to market. In many places considerable attention has been paid to apple trees, and some flourishing young orchards occasionally greet the eye. But we more frequently see others in a state of rapid decay. How often, even among farmers, are found families destitute of apples fit for the table, or culinary purposes, and which, when assailed by sickness, are obliged to send to some more provident neighbour for a supply! Pear trees are very generally neglected; and the greater part

of good pears sold in our markets are brought from other counties.

Our decaying Fruit Trees demand immediate attention, for they may yet be saved. Forsyth, the distinguished manager of the Kensington gardens, in England, for whose improvements in the art of managing fruit trees the British Government paid him four thousand pounds sterling, was so successful in restoring decayed trees, that he computed "an old tree, cut down and properly medicated, would yield as much fruit the sixth year after that operation, as a young tree planted on the same soil would produce in the twentieth year from the time it was planted. He thought no tree lost beyond the power of recovery whose roots were sound, were it ever so much decayed above ground; provided there was one inch of sound bark upon it, he did not despair of recovering it. He frequently exchanged with those who were desirous of turning out old trees. If they would give him the old tree, he would take it up, and put in its place any young tree they might choose from his nursery: for he had found that, even after being transplanted, such old trees came into bearing much sooner than any young ones that he could procure. By the same rule, this experienced gardener, when he was obliged to go to a nursery, always chose the oldest plants he could find there, were they ever so stubbed or ill looking." By what mighty magic were such wonderful things accomplished? By the application of scientific principles to the improvement of his art. Following the advice of the *vine dreseer* in scripture, it was his practice to *dig round them, and dung them*, and at the season when trees are growing, he cut away all the dead wood, and covered the wounds with a composition that prevented the exudation of sap, and defended them from the air, sun and rains.*

* Forsyth's composition for healing wounds in trees is made as follows:

Take lime that has been long slaked, or chalk, half a bushel; wood ashes, half a bushel; sand, two quarts; pulverize and sift them; add fresh cow-dung, one bushel; and work the whole to a fine mortar; dilute it with urine or soap-suds to the consistence of a paint, and apply it with a painter's brush; sprinkle over it a powder, composed of wood ashes, five parts, and ashes of burnt bones, one part, and press it gently with the hand.

Tar and ochre, or pulverized brick, will answer the same purpose.

In this county, peach, plum and cherry trees are much neglected; notwithstanding the latter, if headed down,* and properly managed, will soon bear abundantly; and the former are more easily cultivated than most fruit trees. The best kinds of cherries, ripening, as they do, at an early season, when there is no other kind of fruit in the market, will always command a good price. Of these, the birds, which cheer you with their melody in the spring, and greatly benefit you by destroying insects during that and the following seasons, will claim a share. Instead of declaring war against such good friends, act a more generous part; plant more trees, and raise fruit enough for them, yourselves and the market. Peach and plum trees are generally short-lived: but this is a circumstance of very little importance, as they can always be replaced if a few stones be planted annually. The better varieties of the plum and peach, which can always be raised as easily as any, are delicious fruit, and may be preserved in sugar: or, by drying, for culinary purposes; or converted into vinous liquors by fermentation.

European walnuts are deserving attention, as are our native shagbarks. The growth of the timber will pay for cultivating, and the fruit will be clear gain. The chesnut is a valuable tree, both for timber and its fruit; it grows rapidly; and a late discovery, that the wood is superior to oak bark for tanning, renders it highly important that it should be cultivated where there are such extensive tanneries as in some parts of Essex.

It has been said of American farmers, that "they plant" and "they neglect" fruit trees. In this county they seldom do the first. Nurseries are almost totally neglected, notwithstanding there ought to be one on every farm, containing at least apple, pear, plum, peach and cherry trees. At present nothing sells more readily, or affords the cultivator a better profit, than young fruit or ornamental trees, at an age suitable for transplanting; but should nurseries ever become so numerous as to do away

* *Heading down.*—This method of pruning, Forsyth says, will cause trees to bear every year, and produce three fourths more fruit than they otherwise would. When the buds begin to swell in the spring, cut the principal shoots down to three or four eyes. In old trees, cut one half of such shoots only, in one year. This prevents the growth of long, naked branches, and fills the head of the tree with bearing wood.

this inducement, young trees would still be worth their cost to plant out as opportunities should occur. A principal reason why good fruit is not more plenty, is, that few farmers think they can spare the money to purchase trees, and to raise them from the seed seems too slow a method. They seem to despair of living long enough to derive any advantage from such labours, and consequently spend a long life, destitute of many riches and comforts which they might have possessed. The best policy for agriculturalists, as well as others, is always to act on benevolent principles. Let us plant these trees, should be their language; they will benefit somebody, if we should not live to enjoy them ourselves. And, on a dying bed, it is what we have done to promote the happiness of others that will afford us the greatest consolation.

Quinces, grapes, gooseberries, currants, &c. might be easily cultivated in such quantities, as to supply our citizens with wines, preserves and sweetmeats, equally palatable, and far less injurious to health, than such as are now at a great expense imported.

In looking over English books on gardening and cookery, who is not surprised that so few of the esculent vegetables, esteemed valuable in Europe, are here cultivated? The difficulty of obtaining seed is probably the chief cause of this neglect. May we not confidently hope, that one of the benefits resulting from the establishment of this society will be the more general distribution of rare and valuable seeds; and that, by exhibiting at our annual shows the productions either of uncommon plants, or of new and better varieties of such as have hitherto been cultivated, the attention of farmers will be attracted to means of rendering the business profitable, with which they would otherwise never have become acquainted? Might not our annual meetings in the month of February be rendered more useful and interesting, if the members generally would make it an object to carry with them for distribution such seeds, roots, and also scions of the best kinds of fruits for grafting?

It would also be good policy, I conceive, for American farmers to endeavour to supply the market with such raw materials,

as our soil and climate will produce in perfection, as are in demand, either for exportation or domestic manufacture. Under this head I shall call your attention a few moments to flax, hemp and wool.

With the cultivation of Flax, almost every farmer is in some measure acquainted. But since cotton goods have become so cheap, it has been generally abandoned as unprofitable. Great improvements in machinery for dressing and spinning it having been recently anounced, it is not improbable that it will again be considered one of the most profitable of crops. Linen must ever be preferred to cotton for many uses, provided it can be afforded nearly as cheap. Expertness in manufacturing flax into useful and ornamental articles of dress was formerly, and I trust will again, be considered one of the most honourable of female accomplishments. It certainly deserves to hold a superior rank to embroidering, tambouring and painting. But to enable our ingenious and industrious ladies to rival foreigners in the manufacture of laces and fine linen, they must be furnished with the raw material in perfection. Our patriotic farmers therefore would do well to acquaint themselves with the most improved methods of cultivating and managing flax.* To the Irish, who have carried the manufacture of linen to so great a degree of perfection, we may confidently look for instruction on this subject. And as knowledge acquired from books, and other sources of like nature, is not alone sufficient to ensure success, let such methods as have been found most successful elsewhere, be subjected to experiments on a small scale here. Nor let failure in the first instance discourage farther efforts. It is the price that must generally be paid for all valuable improvements in any art.

Hemp is another article in great demand; for large quantities of it are imported, which might be cultivated here as successfully as in any country on the globe. Why then should we yield to foreign agriculturalists all the profits of supplying Amer-

* The thread for which Mrs. Crowninshield, of Danvers, received a premium from the Massachusetts society, a few years since, was made of flax sowed thick, so as to prevent it from growing rank, was pulled immediately after the blooms had fallen, and boiled instead of being rotted. Water rotting, however, would answer the same purpose.

ican shipping with the raw material for cordage and canvas? According to the Hon. Justin Ely's statement, hemp in Hampshire county has been found to produce from four to eight hundred weight to the acre, and from six to nine bushels of seed. It is worth, at this time, about nine and a half dollars per hundred, and the seed probably a dollar and fifty cents per bushel. The labour of cultivating, pulling and rotting it, cannot be more than is usually bestowed on an acre of Indian corn. An expert workman can dress 3 cwt. in a week. Should it ever be raised in large quantities, it might undoubtedly be dressed by water, at a much cheaper rate. It must therefore I think prove a profitable crop. Were this not the case, it would notwithstanding be worthy the attention of American farmers, who ought to endeavour to supply the market with every thing which they can cultivate, without involving themselves in debt: for by so doing they will plant the seeds of resources, which some time or other will afford them a rich harvest.

Wool. I have no wish to renew the merino speculations which proved so ruinous to many a few years since. I think however that we have much reason to regret the indiscriminate destruction of fine flocks which followed. For although I do not believe that it will ever be good policy for the farmers of this county to go largely into the raising of wool, a commodity more worthy the attention of those who inhabit the interior and more mountainous parts of our country, still I think that a few sheep may be profitably kept on almost every farm. If a farmer has plenty of wool in his house, his wife, daughters, or female domestics, will generally be disposed to manufacture it, although they would not urge him to go and buy it for this purpose, and would be seldom gratified if he did. Or he might make an exchange with the woollen manufacturer, and thus obtain his clothing easier than he otherwise would, although he might, by paying cash, get cloths at a nominally cheaper rate. What kind of sheep, generally speaking, would it be most profitable to keep for these purposes? Livingston says, half-blooded merinoes; and there is but little reason to doubt his correctness, when we take into consideration the value of the mutton as well as the fleece.

Some excellent observations on the subject of ploughing—the best method of increasing the quantity, and improving the quality, of manures—and the cultivation of root crops, and other green food, for feeding cattle—contained in the addresses of the Hon. President of this Society, render it unnecessary for me to call your attention at this time to these subjects of primary importance to every farmer.

On the subject of WHEAT, to what is said in the above mentioned addresses, I will add a few observations. Although the cultivation of this most valuable grain has been generally abandoned on account of the uncertainty of obtaining a crop, it is, I must think, still deserving attention. Is it not surprising that a plant, which comes to perfection both at the north and south of us, cannot be advantageously cultivated here? Is it not evident that the failure must be owing, not to the climate, but to some defect in the preparation, or constituent parts of the soil? If so, these defects can be remedied. Perhaps the following facts, stated by that distinguished scientific English farmer, Dr. James Anderson, will furnish all the hints necessary to ensure success. He states, "that a field of good arable land, a mellow loam, in Aberdeenshire, which had long been under culture, was subjected to a thorough summer fallow, to get rid of the weeds; and a moderate dressing of lime and some dung was given it at the same time. The whole field was sown with wheat at the proper season, which sprung up equally in every part of it. For some time no difference was perceivable in the appearance of crop over the whole. By and by it was observed that the wheat, on a small portion of the field which by accident had not had any lime put upon it, became pale and sickly: while the crop on other parts of the field advanced luxuriantly, it dwindled on this particular patch more and more until about the beginning of May: the whole had then died quite out, and not one stalk of wheat was to be found upon it, though the weeds, in consequence of the richness of the soil, grew there with extreme luxuriance. Perhaps the proportion of lime did not in this case amount to more than one thousandth part of the whole; yet the qualities of the soil were thereby totally altered, insomuch that, though before the application of that dressing the soil was inca-

pable of producing wheat at all, it was found to be at all times after that period well adapted to the rearing of this crop." The effect of wood ashes on soils, though less durable, is similar to that of lime. Will not this account for the luxuriant growth of wheat here formerly, and in those places where the wood has been recently cleared off by burning, at this time?

The greatest improvements in Agriculture in Great Britain, where plaister of Paris, as with us, is found nearly inoperative, have been made during the last forty years by the use of LIME. And there can be but little doubt that much of the soil in this county can be economically improved by the same means. A few directions therefore for using quick lime cannot fail of being interesting: for this can be more easily obtained by the farmers in this county, than any other calcareous earth, except in the neighbourhood of soap manufactories, where leached ashes, which contain much lime, can be had at a cheaper rate. The following directions for using quick lime are extracted from some of the best English writers on this subject:

From thirty to three hundred bushels are usually applied to an acre; but on poor soils, and soils which abound with roots, peat and other insoluble vegetable matter, even six hundred may be used with advantage. Soils thus dressed will be rendered more fertile forever after.

Quick lime should be reduced to powder by slacking it with water, and spread dry, so that it may mix as intimately with the soil as possible, at least one month before the seed is to be sown. In this country, it being necessary to sow grain as early as possible in the spring, the lime should be spread the preceding autumn. And as the feet of cattle are sometimes injured by it, it must be suffered to lie on the surface of the ground till it becomes mild, like chalk, which will take place in a few weeks, before it is either ploughed or harrowed in.

Quick lime applied to plants while growing, and of course to vegetating seeds, invariably injures them. Quick lime injures all animal manures, and therefore should never be mixed with common dung, or applied to the soil at the same time. When applied to low, boggy soils, in sufficient quantities, it will destroy

moss and the meadow grasses, and fit them for producing the most abundant crops of clover, and cultivated grasses.

Irrigation is another means of fertilizing the earth, that has not been duly appreciated in this vicinity. Falls of water have been estimated in England to be worth as much for watering the land, as for mills and factories. It is well known that even the temporary streams formed by the melting snows in the spring, if caused to run a few weeks over dry, gravelly soils, will render them highly productive of grass the whole season. Yet our brooks and rivulets are suffered not only to run to waste, but even to render barren extensive tracts of land in their vicinity. Wherever there is a fall of water running through land suitable for the purpose, let it be divided, and carried as high on each side as it will run freely; throw the intermediate space into ridges about twenty feet wide; along the top of each let a small stream of water be passed occasionally; give the whole a dressing of ashes, or lime; and it will produce the most abundant crops of grass, without any further expense. Admitting therefore that the expense of preparing land in this manner should amount, in the first instance, to an hundred or even to two hundred dollars an acre, it would still prove cheaper than most mowing land, which can be kept productive only by frequent expensive manuring. Such land would contribute the whole of its productions to enrich the other parts of the farm; a consideration of no little importance in estimating its value.

By mixing different earths, soils may be permanently improved. Clayey and sandy lands are frequently found in the immediate vicinity of each other. By dressing the sandy with clay, and the clayey with sand, both, though naturally barren, may be rendered fertile. That similar fertility would follow the mixture of other earths cannot be doubted. Experiments made on chemical principles, will in all human probability develop most valuable resources of this kind, which are at present unknown to agriculturalists.

To the subject of fertilizing and rendering more valuable pasture lands, by covering them with Trees, I cannot too strongly urge your attention. Locust trees grow rapidly, and produce

the most valuable wood and timber. Planted on dry, sandy or gravelly pastures, they greatly fertilize the soil by their abundance of tender leaves, which, falling on the ground, rot in the course of the winter and spring. Cattle are particularly fond of the grass which grows thick and luxuriantly under them, as well as of the young trees which are continually springing up from their roots.

Similar advantages may be derived from planting low, rocky or boggy lands, which are generally covered with alders and other useless bushes, with common willows. These trees not only produce wood, which when dried is better than white pine, faster than most other trees, but greatly meliorate boggy soils, and bring in a better kind of grass, which makes excellent pasturage. Of the correctness of these assertions, every one, who will take the trouble to examine the land under groves of locust and willow trees, must, I think, be fully convinced. They are most certainly not the vain speculations of a theorist. Like many other facts contained in this address, they are derived not from books, but from the observation and experience of my worthy father, who spent an industrious, useful and observing life in the practice of husbandry. Nor are the above mentioned the only advantages derived from covering pasture lands with trees. They serve to shelter the cattle, while feeding, from the exhausting effects of a burning sun. They prevent rapid evaporation, and probably attract showers; consequently increase the size of adjacent streams, and thereby fertilize soils far beyond the reach of their shadows. Besides, whatever grows out of the earth ultimately returns to it again, to afford food for other plants which succeed. Consequently the more any soil can be made to produce, the more that, or some other in the neighbourhood, will be enriched. Do any doubt the correctness of these theories? Why has Palestine, or the holy land, which once flowed with milk and honey, and supported by its own produce, on an extent of territory not exceeding that of Massachusetts, seven millions of people, become so barren as scarcely to be able to preserve a few thousand miserable wretches? Why has the river Jordan, once undoubtedly a noble stream rolling through fertile valleys, been reduced to a small

brook winding its way through a sandy desert? You will perhaps answer, the malediction of the Most High rests upon it. True, but the Almighty effects his purposes through the agency of natural causes. It was overrun by victorious armies, and vegetation was destroyed; exposed to the direct rays of the sun, the soil itself disappeared, the springs were dried up, and fertilizing showers became less and less frequent. The same process is now going on in our naked pastures; many of which, that a few years since were well clothed with grass, now produce little or nothing but moss.

Improving the breeds and condition of Live Stock must also increase the profits of Agriculture. One good cow full fed is worth more for the dairy than four ordinary half-starved ones.* Would it not therefore be for the interest of every farmer to keep no more neat cattle than can be well pastured or soiled in the summer, and fed on English hay, corn fodder, potatoes, turnips, carrots, beets, &c. in the winter, throwing the coarser kinds of hay and straw under them to furnish a warm bed, and to be converted into manure at the same time? By so doing, and by crossing inferior breeds, and raising the best calves, it is in the power of almost every farmer in the course of a few years, without involving himself in debt, greatly to improve his stock, and increase the income of his dairy. I know that this high feeding of milch cows is not generally believed to be profitable, notwithstanding Mr. Oakes and others have proved so satisfactorily that one bushel of Indian corn per week will cause a good cow to yield from seven to ten additional pounds of butter. Allowing the corn to be worth 62½ cents, the extra butter, at 12½ cents per pound, would pay all the additional labour, and afford a good profit (on the corn) besides. But this is not all: the cow would give milk nearly the whole year, be made good beef at the same time, and her calves would be much more valuable. Indian corn, however, is probably not the cheapest article to feed cattle

* If cows are ever allowed to fall very low during the winter, in vain shall you hope to obtain an abundant supply of milk by bringing them into high condition in the summer; for if a cow be lean at the time of calving, no management afterwards will ever bring her to yield for that season any thing like the quantity of milk that she would have done, had she been all the winter in a high condition. *Anderson.*

upon: potatoes, turnips, beets, carrots, pumpkins, &c. are much more easily raised, and will probably answer the same purpose.

Farmers generally would make their pursuits more profitable if they were careful to send to market the best articles, in the neatest order. Good butter, good cheese, good fruit, good cider, good pork, beef and mutton, will always sell, even when the market is glutted with inferior kinds of the same articles. The difference of the expense of raising or preparing the best, and the more ordinary kinds of these commodities, is often very trifling. The butter, for example, offered for sale, is often bad, rancid, and almost worthless. Yet such butter costs almost as much, perhaps often more, than it would to have made it of the best quality. Butter should always be made, salted and preserved by rule. Despise not, therefore, directions on this subject found in books; for it is impossible always to make good butter, if it be carelessly worked over, and salted as chance directs. The difficulty of making good butter, and of sending it uninjured to the market, in the hottest weather, may be easily obviated. For, with very little trouble or expense, ice may be kept in a common cellar the whole season.*

In discussing the means of rendering the pursuit of Agriculture more profitable, Domestic Economy is too important to be omitted. I am well aware that it is extremely difficult to speak

* In the middle or one corner of the cellar may be built a bin. Throw down some boards, and cover the bottom with straw; or, what is better, the spent bark of tanneries, generally known by the name of tan, in sufficient quantity to leave it a foot in thickness under the necessary pressure. In the month of February or March, go to the most convenient pond of fresh water, and obtain a sufficient quantity of ice, cutting or sawing it up in blocks as large as can be conveniently handled, and pile it up as compactly as possible in the middle of the bin, leaving a space of one foot or more all around it; fill this space, and cover the whole with tan or straw, and the ice, unless the cellar be uncommonly open, will keep the whole summer. Two men, and one pair of oxen, will perform all the labour necessary to lay in such a store of ice in one day. Around this ice let the pans of milk be set, and place the pots of cream and butter upon it. Place two or three pounds of ice in each box, and if conveyed thither as expeditiously as from any part of the county of Essex it may be done, it will reach the market in the finest order.

Butter not wanted for immediate use is well preserved as follows:—Take two parts of the best common salt, one part of sugar, and one of saltpetre; beat them up together, and blend the whole completely. Take one ounce of this composition for every pound of butter, work it well into the mass, and close it up for use.

on this subject, without being misunderstood, and giving offence. Those who cultivate the soil deserve to live on its best productions. It is my most sincere desire, that farmers should live well. But the phrase, *live well*, is to be understood living in such a manner as will most promote their happiness, by preserving the health of the body, and tranquillity of the mind; and not living in habits of luxury and intemperance, the most expeditious means of destroying both. I know that it requires greater fortitude than many possess to oppose the fashions of the times, and to change established habits. I also well know that a man cannot always do as he could wish, because his views may not coincide with other members of his family. Still in all cases something may be done towards retrenching expenses that consume the whole of a farmer's income. So long as those engaged in husbandry purchase from other nations a large portion of their daily food and clothing, so long they will be obliged to labour hard, and submit to many real privations, to enable them to defray their current family expenses. It therefore becomes an object of serious concern to them, to learn some way of more cheaply supplying the wants, without diminishing the comforts, of life. Let those who feel interested in this subject review a list of their expenditures in times past, and they will probably be able to discover the means of saving much in future. One exhausting drain on the resources of many farmers is the use of ardent spirits, as a common drink. This not unfrequently consumes their health, cash, and respectability. If therefore the use of strong drinks must be continued, let such as every farmer can prepare for himself be substituted for distilled spirits. Cider, wine, and strong beer, well made and carefully preserved, will surely answer every purpose to which spirituous liquors can be usefully applied. The art of making these ought therefore to be studied by every person desirous of preserving the health of his family, or of husbanding his resources to the best advantage. The most successful practices in this art, time will not permit me to detail. Let the following hints suffice.

By selecting good, sound apples, and properly managing the liquor during and after fermentation, CIDER can be made without addition, possessing a fine flavour, and in strength equal to about one fourth its quantity of proof spirit. By the addition of

about twenty pounds of sugar to a barrel of common cider, as it comes from the press, it will fine itself, keep for years, even on the lees, without souring, and be much improved in strength.

Wine, far superior to most that is imported, either for use in sickness or health, may be made from currants, ripe or unripe grapes, cranberries, or other subacid fruits, allowing about a bushel and a half of fruit, and seventy-five pounds of sugar, to the barrel. Good wines made in this manner will cost about fifty cents per gallon. They now readily sell for a dollar. A respectable member of this society, Mr. Caleb Smith, of Danvers, shipped some currant wine of his own making to India, a few years since, and there obtained for it over two dollars a gallon. This wine was made, and kept perfectly well on this long voyage, without the addition of brandy, or other spirit, a circumstance which greatly increases the value of the experiment, and certainly entitles Mr. Smith to the thanks of the community.

Four bushels of barley malted, and a pound of hops, will make a barrel of strong and a barrel of Table Beer. These liquors should be made in the winter, and will be found excellent drinks in the following summer, free from all the objections which many have to new beer and cider at that season. All the materials, for composing this best of strong drinks for labouring men, can be easily raised, and all the work, except malting the barley, which will cost about twenty cents a bushel, can be performed, at a leisure season, by the farmers themselves.

Agriculturalists of Essex! You possess a territory in which are found a great variety of soils; and the means of rendering them fertile are every where abundant. Three fourths of your borders are washed by the waters of the ocean, which are continually throwing on your shores materials for excellent manure, and which afford, without the expense of making canals, all the facilities of a conveyance by water for your surplus produce to all the most important markets on the globe. The same conveyance will bring lime from distant quarries, if it cannot be found at home, at a small advance on its prime cost, to within a few miles of your doors. What then is there to prevent this county from becoming one of the most fertile and productive districts in New-England? Industry is not wanting, and luxury has not

made greater inroads among us than it has in most other places in our favoured land. A more general diffusion of the knowledge acquired by the experience of individuals, a scientific acquaintance with the principles of the art, more enterprise, generous emulation, and noble ambition, among farmers themselves, are what seem to be most necessary to carry the art of husbandry here to a high degree of perfection. These benefits we trust will result from the institution of this society:—An institution, in the success of which, every owner of land ought to feel particularly interested. Eight or nine hundred dollars more are wanted to enable the society to obtain the whole of the bounty so generously proffered by the government of the state. Are there not many present who are willing to contribute to this object three dollars each, and become members of this society for life? Having done this, another important duty remains to be performed; that is, to exert all your powers to render the society respectable, and extend its influence as widely as possible. To do this, it is desirable that every member should make some communication of his success, or exhibit something worthy of notice, on every occasion like the present. Another important duty is, to prevent our annual cattle shows from becoming scenes of riot, drunkenness, gambling, cheating, and dissipation. Let the "Farmer's Jubilee" be sacred to sober joys ,and temperate festivity, throughout the county; but let every good citizen discountenance every thing of a contrary tendency. Then indeed will the farmers of Essex, in unison with every benevolent mind, have reason to bless the institution, and venerate the founders, and all who shall distinguish themselves as members, of the Essex Agricultural Society, to the latest generation.

ERRATA.

Page 21, eighth line from bottom, for October, 1820, read October, 1821.

Page 29, in some of the copies, for D. Cummins, Secretary, Dec. 7, 1819, read F. Howes, Secretary, Jan. 10, 1821.

Page 47, ninth line from bottom, for gratified if he did, read gratified if *they* did.

AN

ADDRESS

DELIVERED BEFORE THE

ESSEX AGRICULTURAL SOCIETY,

AT THE

Agricultural Exhibition in Topsfield,

OCT. 2, 1822.

BY PETER EATON, D. D.
OF BOXFORD.

SALEM:
PRINTED FOR THE SOCIETY BY JOHN D. AND THOMAS C. CUSHING, JR.
1823.

ADDRESS.

It is evident from the constitution of man, it was the original design of Providence, he should derive his subsistence from the earth. Want soon impelled him to repair to this nourishing parent. Tilling the ground was an art not unknown to the first human family. Where man has existed in the most rude and savage state, the chase has been a favorite pursuit. This, however, affords a precarious and sometimes a scanty support. In proportion as civilization has spread, and a knowledge of the arts been cultivated, agriculture has claimed attention. Its progress was slow and inconsiderable in the early ages. Every thing was to be originated. There were no hints by which to profit—no rude instrument on which to improve—nothing to aid and direct inventive genius. Hence, the instruments of husbandry were very imperfect; yet necessity, the parent of invention, led to the discovery of some of most essential use.

Sicily was the first state in which agriculture attained any considerable improvement. It was here, also, religious rites were first instituted in honor of Ceres, the goddess of husbandry. From this country a knowledge of the art was carried into Greece and the northern parts of Europe. In the early ages of Rome, relaxation from the toils of war was frequently devoted to the cultivation of the soil. The high and the low, the patrician and the plebeian were united in the same employment. All distinctions of rank were lost in the field. Those of the first standing in society might be seen toiling with the peasant. Not only nations the most civilized, but even those the

least cultivated and improved, have considered agriculture the most important of the arts of life, because it provides for the support of life. To do honor to the employment, and encourage the pursuit, Roman dictators followed the plough; and the emperor of China, with the grandees of his empire, make an annual appearance in the field, to sacrifice to their god, that he may be rendered propitious to the labors of the husbandman. But it is not my purpose to trace the progress of the art. I would contemplate it as it now exists.

Gentlemen, I feel incompetent to the task assigned me, possessing neither that theoretical or practical knowledge necessary to furnish me for the occasion. As I have gleaned but sparingly from experience, and not had opportunity to consult the writings of those who have attended scientifically to the subject, you may expect only a few common-place remarks.

No country holds out greater allurements to agricultural pursuits than the United States. Nature has obviously designed this for a great farming nation. With a population spread over a vast extent of territory—blessed with a soil rich and fertile—the inhabitants distinguished for habits of industry and perseverance—the country intersected with rivers and canals, opening a free communication with the sea-coast, which skirts our whole border—our merchants surpassed by none for calculation and enterprise—with ports open to all nations—we have every possible encouragement to nourish and improve the arts of agriculture. It is the life of our commerce, and commerce richly repays the industrious husbandman. Too often has there existed a spirit of jealousy and rivalship, between the commercial and agricultural interests. They are as intimately connected in this country as cause and effect. England is a commercial nation, but of produce she is often a purchaser. It is her manufactures that cherish her commerce. In America, it is the *farm* which gives activity to commerce, and commerce which makes the farmer rich. Though agriculture is of vital importance to the prosperity of our country, yet from its first settlement, till a recent period, this art has been left to itself, neglected and unencouraged, and been under the management of those who reflected nothing more on the subject, than just sufficient to per-

form the manual labor upon the farm. Either from a want of ability or inclination, few have enquired, whether there was any defect in our system of husbandry, or whether it was susceptible of improvement. Hence the same annual routine of service has been performed on the farm—the son following the footsteps of the father, and continuing to cultivate the same field, because his father had done it before him.

We congratulate our country, that societies are forming in every section of the Union—that gentlemen of talents and acquirements are lending their aid to this neglected art, endeavouring to discover the defects of our system, and by experiments to ascertain the improvements of which it is susceptible. Much has already been done, an almost certain evidence more may be done, and sure pledge it will not be left undone.

So inconsiderable is the gain of husbandry, so laborious the employment, as to present little inducement to young men, of talents and knowledge, to engage in the pursuit. The enterprising youth looks around him for the lucrative employment, by which he may raise himself to affluence and ease. The only reward agriculture promises to the most persevering industry, is little more than a bare support. A further discouragement is, it has been considered a menial employment, less honorable than other occupations; and the sentiment has obtained, that nothing more is necessary to make a farmer, than a vigorous constitution and a robust body. Never was there a conclusion more erroneous. The inference that any man is qualified to manage a farm, is as absurd, as that any man is qualified to manage a ship at sea. It requires careful observation, sound judgment and a discerning mind. In every other art and trade, practice and experience are thought indispensable; and is no skill necessary in conducting the complicated concerns of a farm? The practical attention now paid to husbandry, the lively interest taken in the subject by gentlemen of honorable standing in society, have a tendency to raise the reputation of this too often despised profession.

In commendation of this employment, it may be observed, it is favourable to morals, health of body, and vigor of mind. It is friendly to morals, not presenting those temptations to de-

ception and fraud, nor affording opportunities for imposition, nor inviting to the practice of that chicanery, to which some other employments hold out a lure. The time of the farmer is devoted to himself. He labors in the clear light of heaven; and if he cheat his farm, he cheats himself. Besides, he is habitually conversant with objects, which cannot fail to conduct his mind to that Being, who superintends, directs and governs all.

This employment conduces to health of body. Some mechanic arts and manufacturing establishments are debilitating in their influence. They produce a sickly body and enfeebled mind. The farmer breathes a pure, uncontaminated air; and if his day is toilsome, his rest is sweet. To no one class of men are we more indebted for our independence, than the hardy yeomanry of our country. From this class were selected some of your ablest generals and bravest soldiers; and on this class, more than any, rests our hope for its preservation.

Nor will it be said that husbandry is unfavourable to mental vigor. If we do not find, nor should we expect to find, those literary acquirements and general information which obtain among some classes in the community, yet where do we meet with sounder sense and judgment, and greater intellectual vigor, than among our industrious farmers?

The great principles of agriculture are the same in every country; and the plough, the hoe and the harrow are of essential use: yet, so various the climate and the soil, as in some respects to require a different process. One nation cannot adopt the precise system of another. Labor is of the first importance in conducting a farm. In old countries, with a dense population, where it is much cheaper than in America, undertakings may be justified, and attempts at improvement made, which might prove ruinous with us. The disproportion between the price of labor and produce, is a bar in the way of agricultural success. The large extent of our unsettled territory, blessed with a salubrious air and fertile soil, where a farm may be obtained for a trifle, renders it probable this disproportion will long continue. As one country cannot take another for a perfect model in agricultural pursuits; in our own, so different our climate and soil, that the South and the North cannot adopt the same process;

and even in the state of Massachusetts, so various our local situations, that each section must adopt a system, in some respects peculiar to itself.

The society, which I now have the honor of addressing, while desirous of diffusing information and of encouraging the interest of agriculture in general; yet in its formation and in the progress of its measures, has had a primary regard to the advantage of the county of Essex. As every district in the Commonwealth has its advantages and disadvantages, the soil various, and that article may be cultivated in one, unsuited to another; it would be for the interest of husbandry in general, that societies should be as numerous as our districts. Even in the county in which we dwell, certain portions enjoy advantages denied to others. Farms located near populous towns, or the sea shore, can be furnished with manure with greater facility than in the country. General principles in agriculture may be established and recommended, but specific rules are as various as the location of farms, which the judgment and discretion of the manager must search out and prescribe for himself.

The farms in this county (with exceptions not numerous) consist of from forty to an hundred and forty acres of land. In experiments and researches, is not special reference to be had to the interest of the farmer, and what can be accomplished by this class of the community? A gentleman, with a capital. may gratify his taste and curiosity in conducting his farm. With him, it is immaterial, in his mode of cultivation, whether he is remunerated for his expense or not. Not so with the common farmer. In any particular method of manuring and cultivating recommended, the first enquiry is, what will be the clear gain, and shall I realize it at the end of the first or second year? It is to be remembered by our cultivators generally in Essex, that the farm is their dependence; nor can they adopt any system of husbandry which will not give them an immediate profit.

The gentleman of capital, whose farm is his amusement, may wa t years for his reward. The common farmer wants his pay down. Plans of improvement have been recommended, practicable indeed to the man of wealth, but wholly uninteresting to the mass of farmers in Essex, because beyond their ability.

They can adopt no system, which *the farm itself* cannot support. It is a maxim in husbandry, that no scheme of management is of advantage to the community, which will not give a profit; and that is the best which will afford the greatest profit with the least labor and expense. In every pursuit, commerce, manufactures, the mechanic arts and agriculture, gain is the first object. Schemes of cultivation have been proposed, but visionary, because you would be left in debt. With great expense I may obtain great crops; but if not remunerated for the labor and expense, even my great crops will ruin me. The question is not simply, How a great crop may be obtained; there is a second question, Will this great crop pay for itself? It is no valuable improvement in husbandry, to increase your productions, if your expense is proportionably increased; because it leaves you no additional gain. If, with a certain portion of labor and expense, I can obtain forty bushels of corn from the acre, and the expense must be increased in proportion to the increase of crop to raise an hundred bushels, where is my profit? It is of importance, then, in every proposed improvement, that careful calculations should be made of the increased expense. The great desideratum is, to increase the productiveness of a farm, so that the expense may bear a less ratio to the increase.

The moderate size of our farms in this county renders it necessary, that husbandry be conducted on a limited scale. A small farm, however, well cultivated, is much more profitable than a large one, which is neglected. Many of our farmers have materially injured themselves, by endeavors to gratify an insatiable desire of possessing much land. Nothing gives them more pleasure than adding field to field. In justification, it is pleaded, their property vested in land is secure. This remark may be just; but you often sacrifice one half to secure the other. It is bad management, and a mistaken policy. Admitting you can purchase land without involving yourself in debt, and place it in a state of cultivation, the measure may be judicious. A more common practice is, to plunge into debt for the purchase, and to leave the land half cultivated. The consequence is, the interest of the money, taxes, and the expense of labor, eventually consume the purchase. How many of our

farmers complain they are in debt! and these debts have principally been contracted by purchasing land they cannot half cultivate.* In the country, rarely will you find a field which will pay the labor, the interest and the taxes. By purchasing, then, you impose a burden on yourself difficult to sustain. Many have been impoverished, and not a few have been ruined, by possessing themselves of land for which they could not pay. The intelligent farmer, before he plunges into debt, will not fail to attend to this plain question, Will the income of the intended purchase more than repay the interest, the labor and the taxes? If not, you are better without the land. The possession of more land than can be improved is a tax upon the owner.

It has been said, nor can it be too often repeated, that manure is of the first importance on a farm. Notwithstanding the various ways of collecting it have been pointed out, its utility and necessity urged by scientific and practical men, little attention is paid to the subject by one half the farmers in the county. Nothing more is provided for their fields, than what is collected from their hovels in the winter, and the pens of their cows in the summer. He who does not attend to this branch of husbandry, is not deserving the name of a farmer. Every barn yard, after being emptied in the spring, should be immediately replenished, either with scrapings from the streets, earth which has been collected by wash, or the vegetable soil of low meadows. The latter is preferable for warm, dry land. Where cows are

* This is often the effect of a pardonable pride—that liberty in which we glory—liberty for every man to dispose of his own property as he pleases, or, if he dies intestate, the law divides it equally among his heirs. In England, though the laws do not forbid a division of their large estates, the eldest son usually possesses the soil and titles of his ancestors; the younger branches of the family not participating in the landed property. In the U. States, as the law makes an equal distribution of property among the heirs, one takes the farm by paying out legacies. Unwilling to dispose of the paternal inheritance, he commences life with a burden of debt; under the weight of which he is often crushed. The child who inherits the homestead, is usually envied. More frequently is his the harder lot. This law, which equalizes property in a family, is productive of one happy effect; it preserves an equality among our citizens, not known in England; and, so long as this law shall be in force, will forever preserve us from the evils of those wide extremes there experienced—overgrown wealth, and abject poverty.

folded over the night, a most valuable composition may be prepared through the summer. It is known to every farmer, that turning it often with a plough or fork will greatly increase its value. Of manure, too much cannot be said. The subject cannot too frequently be brought into view, nor too pressingly urged. It gives you grass and your grain. Although there is little danger of applying too great a quantity to your land, it may be used to excess. Indian corn will bear a free dressing; but your crop of small grain may be injured by manuring too highly. It will either be choked by weeds, or fall down and perish before ripe. Even grass land may be manured to excess--causing your grass to fall before half grown; or, if it escape this calamity, is rank and coarse, and not relished by your cattle. On the rich bottom lands in the Western States, when first cleared, a succession of crops of Indian corn are taken off to reduce the land, before wheat is applied.

Few articles are cultivated with greater profit and success in this country, than Indian corn. The valuable uses to which it may be applied, are well understood. Yet errors, undoubtedly, obtain in its cultivation. It is a general practice with good farmers, to give their corn three hoeings, without regard to different soils, or the state of their land. Whereas, four hoeings are more necessary for some fields, than two for others. It is indispensable that the weeds be kept down, let it cost what labor it may. If three hoeings will not do it, apply the fourth. Permit them to grow, not only do they injure your present crop, by taking the moisture and nourishment from your corn, but suffer them to seed, and a foundation is laid for a harvest of weeds the following year. Indian corn is usually succeeded by small grain: and how often have we observed it choked, and, before harvest, overtopped, by weeds sown the preceding year, through the neglect of the husbandman! In land naturally weedy, when sown with small grain, I have sometimes nearly lost my crop by its being overtopped by weeds. The evil has been remedied, by increasing the quantity of seed. Upon the farm on which I was born and brought up, (my father was a husbandman) it was practised, in planting Indian corn on sward land, to put the summer manure into the hill: the winter manure was spread, and,

as was termed, harrowed in, but not a fourth part was covered; the rest was lost by evaporation. This injudicious practice is still continued by many farmers. To our President we feel indebted for many valuable remarks on this subject.* If corn is hoed after it begins to top, the plough ought not to be used. It has been found, at this advanced state of the corn, that fibres extend four and five feet, near the surface of the ground, in search of nourishment. These fibres are cut by the plough; the corn is deprived of much of its nourishment, and your crop is injured. If necessary to remove weeds, let the hoe be the instrument. It is believed to be of consequence, that attention be paid to the form of the hill. Some prefer a large hill, of a conical form, as it will preserve the stalks more erect; and by making a large hill, all the manure is brought into the vicinity, and the corn will more readily avail itself of the advantage. A flat hill, of a moderate size, is unquestionably preferable; the stalks are permitted to spread themselves—are not so easily broken by the wind—more readily admit the sun, the dew and showers. Nor is a large hill necessary, that the manure may be drawn up; the fibres, which wander so far in search of nourishment, will find it, if upon your land.

Summer wheat, though a most valuable grain, is not adapted to the county of Essex. In some of our western districts, it may be cultivated with success, while we have sustained from its cultivation very material loss, within the last thirty years. Not oftener than once in three or four years do you obtain a decent crop. In the intermediate years, your produce is small. Average your gain for four years, and you find the profits light. Still, the farmer lives in hope, and continues the cultivation of a grain which but indifferently rewards him for his labor. Whereas, barley and oats rarely fail you. Is it owing to our proximity to the sea, that our wheat is oftener blasted than in more inland counties? And why is one field, with us, blighted like Pharaoh's corn, while another, but little removed, is rank and full? Enquiries into the cause are well worth the attention of the philosopher.

It is very desirable that our wet meadow-land, much of which

*See Hon. Mr. Pickering's Address to the Essex Agricultural Society, 1818, pages 8, 9.

is now almost useless, might be rendered productive. These lands we possess to a considerable extent. Is it impracticable to introduce the fowl-meadow grass? Has the experiment been sufficiently tried? Some meadow land has been improved by draining, and carrying on earth. The late Col. Baldwin, a gentleman of a truly philosophic mind, gave me the following facts. Having occasion to build a barn, he formed the purpose of opening a cellar under it, for the reception of manure. The plot on which the barn was to be erected was a light sandy soil. In the vicinity was a boggy meadow, through which he cut wide ditches, with sides not perpendicular, but on the principle of the inclined plane, to prevent filling. In the winter, when frozen, the ground was covered with sand taken from the cellar, this again with the earth taken from the ditch. Clover and herds-grass seed were then sowed, which grew luxuriantly, rising to the height of three or four feet, giving him three tons to the acre. It may be questioned, however, whether this was the most proper seed to apply. Clover and herds-grass are not natives of the bog meadow, and after being introduced by artificial means, will degenerate. Had fowl-meadow grass been substituted, his success doubtless would have been greater. This valuable grass delights in being irrigated, yet will not flourish amidst stagnant water. It may be introduced by burning, or ditching and carrying on earth. In some parts of Worcester county, it has been introduced with great advantage into wet meadows, which had been useless. I regret it is not in my power, at this time, to make some more particular communications in regard to this excellent fodder.

Change of crops is ever thought of importance by the intelligent farmer. In every soil there are ingredients suited to the nourishment of certain plants. Hence, we see different soils spontaneously yielding different trees, roots and vegetables. In vain you attempt to raise particular vegetables on certain soils. The reason they will not flourish is, the soil does not posssess those particular qualities or ingredients necessary for their support. Often it is impregnated with qualities which are injurious. Useless the attempt to cultivate the willow on the sandy desert, while some vegetables will flourish no where else. Ev-

ery plant has a particular constitution (if I may be allowed the expression,) which requires a particular climate, soil and nutriment, and, if denied either, becomes feeble, sickly, and may die. Following land with a succession of crops of the same kind, may eventually exhaust it of those particular qualities in which they delight. A field of potatoes has been reared, of the most luxuriant growth. In the following year the same crop continued; and, though manure was abundantly supplied, it was feeble, and of scarce any value. Did not the preceding planting exhaust the soil of those particular qualities in which the root delights? Succeeded by different seed, the increase was satisfactory. It being most evident, there is something in every soil particularly suited to nourish certain vegetables, may not these qualities be exhausted, and render a change expedient and profitable?

A common error we observe in husbandry is, continuing the cultivation of the same field, while others, of a better soil, are permitted to lie neglected. How often we see the son planting and sowing year after year the same spot of ground, for no better reason than that his father did before him; while by the side lie lands of a far richer soil, devoted to grazing. Old worn-out lands are followed with the plough and the hoe, affording a very scanty increase; while a rich soil is neglected, because it would require some labor to subdue it. The judicious farmer will scarcely think of estimating the expense of sbbduing a soil naturally rich and fertile, knowing he will be amply remunerated by the increase.

It is believed this is a too prevalent error with our farmers: they have a certain set time, in which their sowing and planting must be completed; and do not pay due regard to the season, and the state of their land. The husbandman should be carefully observant of the opening and advance of the season, and have particular respect to the state of his land in putting in his seed. Is your land wet, you must wait till it acquires sufficient warmth and dryness for the seed to vegetate. Many crops have been lost from an impatience to have done sowing and planting.

We cannot refrain from expressing our gratitude to those gentlemen who originated this society, our satisfaction in the inter-

est taken by them in the improvement of our husbandry, and the success which has attended their measures. Certainly, a new impulse has been given to agriculture, and a spirit of enquiry excited.

You will permit me, in the name of my brethren in the ministry, to express their thanks for that act of civility, by which they have been constituted members. This acceptable notice is duly appreciated. Being most of us connected with farming parishes, bound to our people by the cords of duty and love, we cannot but take a lively interest in their temporal prosperity, as well as their moral and religious improvement.

Industry is of the first importance to the farmer. Neglect your farm, and your farm will neglect you. Solomon was a wise observer, and a practical preacher. His observations on men and things, and the lessons he has left us, are of inestimable value. The picture he has drawn of the indolent man, is done with the pencil of truth: "I went by the field of the slothful, and by the vineyard of the man void of understanding; and, lo! it was all grown over with thorns, and nettles had covered the face thereof, and the stone wall thereof was broken down. Then I saw, and considered it well: I looked upon it, and received instruction. Yet a little sleep, a little slumber, a little folding of the hands to sleep; so shall thy poverty come as one that travelleth, and thy want as an armed man." With industry must economy be united. Every experienced husbandman, who has only his farm for his support, has learned that close calculation is necessary. In past years, the enhanced price of produce could support expenses which now require retrenchment. We have pleasure in knowing, our intelligent farmers are learning the lesson, and beginning to live within compass. With our industry and economy, let us combine a humble dependence on that Superintending Power, who has given us a good land, is the great parent of the human family, and whose favor we have reason to expect, in proportion to our faithful exertions.

THE

ESSEX AGRICULTURAL EXHIBITION,

AT TOPSFIELD, OCT. 2, 1822.

In presenting to the public a statement of the doings of the Society, the present year, the Trustees have to regret that their annual exhibition of cattle, &c. did not equal their expectations. The experiments on crops are in a good degree satisfactory. They had hoped that the liberal premiums offered, added to the intrinsic importance of the subject, would have induced much greater numbers of our husbandmen to exhibit the evidences of agricultural improvements; thus doing honour to themselves and the county, and presenting successful examples for others to imitate. Nevertheless, the Trustees will continue to hope that the objects of the institution will receive increased attention; and that their disinterested efforts for the improvement of the agriculture of the county will be seconded by its substantial yeomanry; and thus place its farming interest at least on a par of excellence with that of any other county in the Commonwealth.

REPORTS OF COMMITTEES.

No. I.—ON THE MANAGEMENT OF A FARM.

The Committee appointed by the Trustees of the Essex Agricultural Society, to examine the claims for premium for the best Management of a Farm, submit the following

REPORT:

That they have received but four claims on this subject, viz. from the Hon. William Bartlet, of Newburyport, for his farm in Methuen ; from Col. Jesse Putnam and Capt. Dudley Bradstreet, of Danvers ; and from Mr. Isaac Dodge, of Hamilton.

Each of these farms was visited by the Committee in the month of July, when vegetation was most flourishing; and the several statements of the claimants annexed to this report have been carefully examined.

The farm of Mr. Bartlet in Methuen is in a very high and superior state of cultivation. It consists of about two hundred acres of land; is conveniently divided into lots; and well fenced with the best of fences, Stone Wall. The order and neatness with which all the business of the farm is conducted merits high approbation. The lands have been much improved by the removal of the stones for the building of wall, and laying covered drains, by means of which waste lands have been converted into fine cultivated fields. Great attention is paid to obtaining manure, and an abundant supply is made on the farm. But most of all were the Committee pleased with the habits of sobriety and temperance inculcated upon the labourers, and with the fact, that so large a farm, employing many hands, was carried on entirely without the use of ardent spirit at any season of the year. Would our farmers generally imitate this example, they would soon find themselves relieved from the heaviest tax with which they are at present burthened. Your Committee are well aware of the advantages, in point of capital, possessed by Mr. Bartlet, over most other farmers in the county. Still they consider the improvements he has made, such as are within the means of, and worthy of imitation by, our farmers generally; and they are of the opinion that he is entitled to the first premium of *thirty dollars.*

The farm of Col. Jesse Putnam, of Danvers, consists of about 114 acres of land, and is well cultivated. The orchards are superior to any we have seen in the county, and the management of the young trees appears to be excellent. The methods pursued by Col. Putnam of subduing the rough lands, and reclaim-

ing his wet meadows, and turning them to fertile fields, are highly judicious. Great attention has been given on this farm to the making manure; and much benefit has been derived from the swine in this particular. On the whole, your Committee are of the opinion, that Col. Putnam is well entitled to the second premium of *twenty dollars.*

The farm of Capt. Dudley Bradstreet, of Danvers, consists of about 192 acres of land, and is well cultivated. The careful and accurate mode of proceeding pursued by Mr. Bradstreet is worthy of approbation. The crops on his lands appeared very fine; and his mode of management in general worthy of imitation. The Committee were particularly pleased with the examination of a piece of swamp land, which by the skill and industry of Mr. Bradstreet has been made to produce an abundant crop of English hay.

On examining the farm of Mr. Isaac Dodge, of Hamilton, the Committee are fully confirmed in the opinion expressed in the report of the last year. They consider Mr. Dodge well entitled to the approbation of the Society, for his industry and skill in the cultivation of his lands, and the zeal he has manifested in promoting its interests. There has not been sufficient time since the last year for him to make any essential improvements. His crops, the present year, appeared very fine.

Your Committee cannot close this Report without expressing their regret, that there were so few competitors for the premiums on the management of a farm. They are sensible that there are farms in every town in the county that would well bear an examination; and perhaps many that would compare well with those they have been called upon to examine;—but as the proprietors did not come forward with their claims, it was not in the power of the Committee to bring them into the comparison. Should these premiums be continued, it is to be hoped that all our good farmers will volunteer their assistance in a cause, in which to *fail* is no disgrace, but *to succeed* is the *highest honour.*

JOHN ADAMS,
TEMPLE CUTLER, } *Committee.*

Danvers, November 20, 1822.

MR. BARTLET'S FARM.

The Farm in Methuen belonging to William Bartlet, Esq. has been under my direction five years; Mr. Bartlet has all the income from said farm, and pays all the expenses.

Said farm contains about two hundred acres of land, and is divided into twenty lots, all which are fenced with a substantial stone wall; 13 of the lots have been cultivated, and have produced wheat, rye, oats, flax, Indian corn, potatoes, English and Swedish turnips, white beans, timothy, herds-grass and clover hay; 8 lots are at present in grass for mowing; 5 lots for pasturing; one lot is woodland and pasture for young cattle; one lot is an orchard of apple trees, in good bearing; and 5 lots are under culture for corn, oats, potatoes, English and Swedish turnips, and winter rye, with a part of some lots for flax and white beans; besides a garden of vegetables for summer and winter use for the family.

The system of rotation of crops is five years.

The quantity of manure made upon the farm in a year is about 200 ox cart loads, of 40 bushels each: this manure is made by the neat cattle and swine—about 60 loads by the swine: the cattle yard is cleaned up every morning, and the manure put into a heap under cover from the sun and rain. The swine have the *shavings* of the fields and brooks, the pomace of the apples, the weeds and other materials thrown to them during the summer and autumn, and are kept in their inclosure all the time, and in the spring the yard is cleared.—The neat cattle are kept in the barn-yards all the night in the summer season; and in the barns and yards all the winter season; the water for their drink being brought into the yards by an aqueduct.

About 5 tons of ground Plaster of Paris for each year, have been used for several years past, as a manure upon the grass land, and the corn and grain for sowing have been mixed with it.

The product of the farm some years has been greater than others, but it produced in 1821 the following articles:

35 barrels cider, 600 bushels corn, 700 bushels potatoes, 40 bushels English turnips, 4½ bushels white beans, 475 lbs. flax,

75 bushels rye, 320 bushels oats, 350 lbs. butter, 2000 lbs. cheese, 4000 lbs. pork, 40 cart loads pumpkins, 75 tons English hay, 10 cart loads fodder.

And the present year, 1822,

70 tons English hay, 10 tons run hay, 306 bushels oats, 1200 bushels potatoes, 300 bushels Indian corn, 500 lbs. flax, (this by estimation, it not being cleaned) 1100 bushels English turnips, 300 bushels ruta baga, 100 barrels cider, 40 bushels winter apples, 20 bushels winter pears, 2400 lbs. cheese, 400 lbs. butter, 6 bushels white beans, 12 calves, sold at 7 dollars each, 4 fat oxen, sold for 294 dollars.

The stock of the farm consists at present of 15 cows, 10 oxen, 3 yearling heifers, 1 spring calf, 1 late calf, 2 calves for butchering, 19 swine, 34 sheep and lambs, and 1 horse.

The labour on the farm is done by myself and wife, with 2 men and 1 boy, and 2 young women or girls: but in the most hurrying times, particularly in getting in hay, as many hands are employed to cut and cure it as can work to advantage. And the only drink used by the labourers, both transient and stationary, is produced by the farm, viz. beer and cider.

JONATHAN MORSE, 2d.

Methuen, September 28, 1822.

N. B. This year's produce is added to this statement since the description was made out.

Newburyport, November 13, 1822.

Note. By the "*shavings* of the brooks and fields," Mr. Morse means "the grass and weeds which grow in the brooks & round the edges of the fields;" which, being unfit for fodder, are thrown to the swine.

The "ten cart loads of fodder" were the produce of the field of oats; which being seeded with herds-grass and clover, and these, after the oats were harvested, growing luxuriantly, the field was mown (the oat stubble and young grasses) and yielded (as Mr. Bartlet has since stated) "ten bulky loads of excellent fodder, almost equal to second crop hay."

COL. PUTNAM'S FARM.

Col. Jesse Putnam's farm is situated in the North Parish in Danvers, about six miles from Salem. It contains about 114 acres; to wit—44 of tillage—40 of pasture—and 18 of wet, or low-ground meadow. His woodland is not in Danvers. Most of his tillage land is covered with orchards of apple trees; of which about 1200 are large enough to bear fruit; and 400 have been planted, or grafted, from two to six years. He raises his own trees in nurseries; which he renews from time to time, to supply his own wants. He considers the spring the best time for transplanting trees. In this operation he digs the holes four or five feet in diameter, and two feet deep; into which, in planting the tree, he introduces rich soil, that the tree may sooner recover from the check it receives in the transplanting.* By giving such dimensions to the holes, the roots may be regularly spread out in every direction, without being crowded. He disapproves of making nurseries in very rich soils; because they will generally be transplanted to poorer soils, and so be sensibly and injuriously checked in their first growth. He thinks it better to transplant from a poor to a rich soil, than from a rich to a poor one. Most of his trees are grafted with winter fruit. In selecting his fruits, he is careful to choose the kinds that are good bearers, as well as of good qnalities; grafting over again, with other fruits, such trees as are not sufficiently productive. Col. Putnam has found it very beneficial to young trees, to wash them in the spring with a composition of lime, clay, fresh cow dung and water; as it removes the moss, destroys the insects that find harbours in the rough bark, and gives a smooth, vigorous and lively appearance to the trees. He has found it serviceable to vary the manures applied to his trees, according to the nature of the soil. He has frequently sown barley, or other grain, around them, and when 18 or 20 inches high, dug it in. This he has thought one of the best modes of manuring them; and (as well as every other way of manuring) should extend to three or four feet from the tree, all round;

* *In planting trees, the roots should be covered with earth at no greater depth than before their removal.*

continuing this practice at least until the trees have attained a good size, and are in a good thriving and bearing state.

For several years past, he has annually broken up three or four acres of his pasture land, where principally covered with small bushes and moss, and planted the same with potatoes or corn; and when laid down to grass found himself amply compensated.

It has been his practice to plough, in the warm weather in August, the land intended to be planted the ensuing spring; at which time it is cross-ploughed. By ploughing when the earth is warm, he says the sod is better rotted, and more easily rendered fit for tillage crops. Ploughing late in autumn he thinks not advantageous. Thus cultivated one or two years, the land will be in a good condition for English grain and grass. The same land will need to be broken up again, as often as once in six or seven years.

"The raising and curing English hay (he remarks) occupies a large portion of our time; and rewards our labour as well as any thing that is done on the farm: and the object of cultivating other crops is, in a good degree, to prepare the land for this most important crop.

The produce of his farm, in 1821 and 1822, as near as he could estimate the same, he states as follows:

	1821.	1822.
English Hay	24 tons	30 tons.
Oats for fodder	3 do.	4 do.
[Wet] Meadow Hay	8 do.	7 do.
Barley for fodder	0 do.	3 do.
Indian Corn	70 bushels	150 bushels
Potatoes	800 do.	300 do.
Barley	70 do.	cut for fodder.
Onions	0 do.	150 bushels.
Carrots	40 do.	90 do.
Turnips	20 do.	150 do.
Cabbages	10 dozen	30 dozen.
White Beans	2 bushels	7 bushels.
Green Peas for the market	4 do.	50 do.

Summer Apples	130 do.	150 do.
Winter Apples	600 do.	600 do.
Pork	2000 lbs.	2000 lbs.
Pumpkins	2 tons	4 tons.

He kept no particular account of his dairy; but his cows, six in number, had done well.

Col. Putnam's mode of making manure, he states as follows:

"In the autumn I clear the barn yard, and carry the manure into large and compact heaps, in the fields where it is intended to be used. The yard is then covered with turf, loam, or pond mud, and such other materials as are found on the farm, suited to making manure. These, together with the droppings of the cattle in the winter and summer, and the relics of their fodder, are mixed together in the course of the summer, and made into fine manure. This I use principally on my grass land; spreading it from the cart, after the grass is grown several inches.

"I have a cellar under my barn, in which the winter dung and urine of the cattle are collected. By mixing with these, in the cellar, meadow turf [or sod] coarse hay and corn stalks, the quantity is much increased. I also carry large quantities of materials to my hog pen, which is so situated as to be kept moist; and from the industry of the swine in preparing this manure for the field, I find more benefit from them than in any other way."

His usual stock consists of six oxen, eight cows, one bull, two horses, and several extra cattle to be sold in the spring, and from six to twenty swine.

Col. Putnam closes his statement as follows:

"Some of my [wet] meadows have been converted into excellent English mowing grounds, by carrying about six inches of gravel on to them in the winter. In the first place I divide a meadow into lots about three rods wide, by ditches—turning the turf bottom upwards—and taking care to have the middle of the lots the highest, so that they may be a little sloping towards the ditches. Plough the turf and gravel together, in the spring, and plant it one season with potatoes: the crop will be as good as in common fields. Then carry on one or two inches of top soil, and a good coating of manure; and from land thus prepared, I have obtained my largest and best crops of English hay."

No. II.—ON INDIAN CORN AND OTHER CROPS.

The Committee appointed to examine the claims for premiums on *Indian Corn and other crops*, have attended to that duty, and submit the following

REPORT:

That the whole number of claims for premiums on these subjects entered with the Secretary was twenty four; seventeen of which were supported by the necessary statements and certificates. They regret that these were withheld by any; for in some instances as much instruction may be obtained from tracing the causes of failure, as of the success, of crops.

For Indian Corn, the claims were eight, as follows:

1. Mr. Daniel Burnham, of Newburyport, raised, on one acre of land, one hundred and seventeen bushels and a quarter, weighing fifty lbs. to the bushel. The soil was of middling quality. The seed was raised at Council Bluff, on the river Missouri. It originally came from the Maha Tribe of Indians. The land was well manured, and cultivated with great care and attention. Your Committee were highly pleased with the statement of Mr. Burnham, and think that he richly deserves the thanks of this Society for his interesting experiment;—but as the present has been a season uncommonly favourable to the culture of this kind of corn, they are not fully satisfied that it may be cultivated to advantage in ordinary seasons in this climate. They would however recommend further experiments on the same, and a *gratuity* to Mr. Burnham of *ten dollars.*

2. Mr. John Lees, of Newbury, raised, on one acre, one hundred and eight bushels and twenty quarts of Indian corn, weighing fifty-nine lbs. to the bushel—seventeen hundred and fifty lbs. of pumpkins—one hundred and fifty lbs. of squashes—eighteen bushels of turnips, estimated in the whole equal to one hundred and eighteen bushels of corn. The land was moderately manured, the cultivation good; the common eight rowed corn was used. We are of the opinion that Mr. Lees is entitled to the premium of *fifteen dollars.*

3. Mr. Henry Little, of Newbury, raised, on one acre, one hundred and sixteen bushels and nine quarts of Indian corn, weighing 58 lbs. to the bushel, together with some turnips and pumpkins. Mr. Little has been, since the commencement of this Society, one of the most successful competitors for its premiums. His lands are naturally good, manured in the best manner, and managed with an ability that will always ensure success. His examples have done much for the benefit of agriculture, and he is well entitled to the thanks of the Society, as also to the premium of *ten dollars*.

4. Mr. Erastus Ware, on the Pickman farm, in Salem, on one acre raised ninety three bushels and three quarters. The seed used was the early eight rowed white; it was ripe by the first of September. The soil was rich, and well manured; and the cultivation and crop are considered very good.

5. Mr. Richard Crowninshield, of Danvers, raised on one acre ninety and a half bushels. The common eight rowed corn was used. The soil was good, had been planted with various crops for eight years past, and the present year was but slightly manured. It was planted late in the season, and hoed but twice. Under these circumstances the Committee consider the crop extraordinary good; but cannot recommend this careless mode of management as worthy of imitation.

6. Mr. Daniel Mears, on the farm of the Hon. Wm. Reed, in Marblehead, raised, on one acre, eighty seven and a half bushels of corn, and about one ton of pumpkins. The soil was good, had been in grass for several years previous, and was moderately manured. "The expense of labour, estimated, except finding the men, at five dollars fifty cents." The Committee consider the neat profit of this field as great as any one reported.

7. Mr. Jacob Gould, of Boxford, raised, on one acre, seventy two bushels of Indian corn.

8. Mr. Isaac Dodge, of Hamilton, raised, on one acre, seventy bushels, three quarters and five quarts of Indian corn.

For *Barley*, four claims were entered, and but two statements received. The Committee are of the opinion that Mr. Jacob Wilkins, of Marblehead, is well entitled to the premium of *ten dollars*, for his crop of Barley, at the rate of fifty bushels to the

acre. They also recommend that the premium of *eight dollars* be awarded to Mr. Isaac Dodge, of Hamilton, for his crop of barley, at the rate of thirty three bushels to the acre—not because the crop is extraordinary, but to induce others to bring their claims forward hereafter.

For *Potatoes*, several claims were entered, no statements received. As the potatoe is one of the most useful and necessary articles raised by our farmers, both for the support of man and beast, the committee cannot forbear to express their regret, that the premiums offered on this article should be treated with so much neglect. They believe that with proper attention to the selection of the kind of seed to be used, and care in preparing the land and planting the same, the crops of potatoes may easily be made four times as valuable as they now usually are; and that our farmers cannot better appropriate a few acres of their land, than to the cultivation of this article.

For *English Turnips*, two claims were received.

1. Mr. Henry Little, of Newbury, raised, on one acre, six hundred and eighty seven and a half bushels; and is entitled to the premium of *ten dollars.*

2. Messrs. Silas and Joseph Little, of Newbury, raised, on one acre, six hundred and fifteen bushels; and are entitled to the premium of *eight dollars.*

The expense of raising and harvesting these crops is stated to be about thirty dollars to the acre. They are obtained after a crop of grass has been taken from the land. Hence may the farmer learn how to relieve his anxiety when his crops of hay are cut off, or his expectations not realized. By a little extraordinary industry, applied in proper season, an abundant supply of vegetables may be obtained for the consumption of his cattle, and at small expense.

For *Carrots*, but one claim was received.

Mr. John Dwinell, of Salem, raised, on one hundred and eleven and a half rods of land, eight tons three hundred weight. Considering the season was unfavourable to the cultivation of this article, the crop is good, and Mr. Dwinell is entitled to the premium of *eight dollars.*

For *Beets* and *Mangel Wurtzel*, two claims were received.

1. Mr. John Dwinell, of Salem, raised, on one hundred and four and one third rods of land, twenty nine tons one quarter and twenty five pounds of beets. The land was the same on which Mr. Dwinel obtained a premium for potatoes the last year. It was highly manured, and well cultivated. The crop is considered very extraordinary, by far exceeding any known to have been raised in this vicinity, and well entitles the claimant to the first premium of *ten dollars.*

2. Mr. David Little, of Newbury, raised, on one acre, nine hundred and seventy and a half bushels of mangel wurtzel, two bushels of carrots, and one hundred and seven cabbages. The land was highly manured, and well cultivated. Expense of cultivating the acre, twenty-four dollars. Mr. Little is entitled to the premium of *eight dollars.*

For *Ruta Baga*, but one claim was received.

Mr. David Little raised, on one acre, four hundred and eighty one and a half bushels. Expense of cultivation, about twenty dollars. This crop is not extraordinary, but in the opinion of the Committee entitles the claimant to the premium of *eight dollars.*

For more particular information on green crops, the committee would refer to the statements of experiments hereunto annexed. All which is respectfully submitted, by

DANIEL ADAMS, 3d,
JACOB B. WINCHESTER,
NATHAN FELTON,
JESSE PUTNAM,
DUDLEY BRADSTREET,
AMOS PERLEY,
} *Committee.*

Danvers, November 20, 1822.

DANIEL BURNHAM'S STATEMENT.

Sir,

I beg leave to offer to the consideration of the Trustees of the Essex Agricultural Society the following statement of the cultivation of an acre of Indian Corn. The seed was raised at Council Bluff, on the river Missouri. It was received at that

place, from the Maha nation of Indians.—The kernel is large, free from flint, and filled with a sweet white flour. It is generally eight rowed, though some of it is ten and twelve rows. It was brought to this quarter late in May 1821. I received a few kernels of it, and planted it the last of May or the first of June. Such was its promise through the season, and such its bounty at harvest, that I thought it might become a valuable acquisition to this region, and I determined to make an experiment of a field of it. Accordingly, the last spring, I took a piece of land, such as is called common tillage ground, with a light soil, inclining a little to gravel, and having a north hanging: this is its character, given by those I have consulted, and who are considered good judges. The land had lain to grass for the two years previous, without manure; but either from the failure of the grass-seed, or some other cause, the crops were quite scanty. The sward was so tender, and broken, and the plough clogged so much, that it could not be turned so well as was wished. As soon as turned up, a harrowing succeeded, then the holeing, at the distance of four feet one way and three the other. Five cords of common barn manure (about half new and half old) was put in the holes in a very coarse state. The greater part of the manure, I think, ought to be called strong: some of it, however, was very feeble. Three kernels were placed in a hill; nine quarts of seed were put on an acre and a quarter. It was my intention that the planting should be done as well as it could be; but from circumstances beyond my controul, I consider the whole process of planting to have been badly executed. The ploughing and planting were done from the 4th to the 7th of May. Immediately after planting, the ground became so parched with drought, that much of the seed failed. To supply the deficiency of standards, about the 25th of May I placed seed in drills, from which, when large enough, I transplanted into the field, say from 450 to 600 plants. As it is the opinion of many, that transplanted corn does not succeed well, perhaps it may not be thought amiss, if I observe, that from earing time to harvest the transplanted could not be distinguished from the other. The corn was hoed, in the course of the season, four times, without ploughing between the rows:

the fourth time was merely loosening the surface of the ground, and destroying the weeds. The appearance of the corn was rather unpromising until the rains had wet the manure. It then exhibited a very remarkable growth, and its luxuriance became so great, that it was apprehended by many that the crop was much at hazard. I planted some of this corn in the drill method: the standards were from fifteen to twenty inches asunder, and I believe (if I may regard this small experiment) that if the field had been planted in this form, the crop would have been more abundant. This method would give sun and space to the shoots, from which much of the crop may be expected: but they were so crowded by being in hills, that they could not have proper expansion. For this reason I think this corn requires the drill method much more than our common corn. The height of the stalks is not greater than much of the common corn, but above and below the ears they are much larger. It was not uncommon to see from three to five large shoots from a kernel, and from a shoot two good ears. The last season, I suspected that the best and most abundant crops might be obtained from the mixed-seed; this year, since harvest, I am fully convinced that this will prove the fact. This is likewise the opinion of practical farmers who have examined it, and bespoke some of the mixed-seed. I expect to plant, the next season, another field; in which case I shall surely make use of mixed-seed, and without apprehension of its not coming to maturity; and shall plant in the drill method, leaving the standards at least fifteen inches from each other. What I mean by mixed-seed is, when the kernel has become in a degree flinty, from receiving the *pollen* (or *farina*) from the stalks of our flinty corn. My field became much mixed, from the corn in surrounding gardens. This I do not at all regret, for I am confident that I had on the same space a heavier crop, than where I had pure seed, on ground much better, and much better prepared, than the field was; and this pure seed was fully ripe and taken in the 24th of October.

The fodder on the field was abundant. It seems the sober estimate of the best judges, that from the tops and bottoms, on an acre and a quarter, it was fully equal to two tons of English

hay. The time and labour in cutting and curing them was, I fully believe, three times as much as on common fields of the same size. The harvesting, which was done by cutting up the bottoms, was about in the same proportion. The topping of the corn was done about the 20th of September; the harvesting from the 13th to the 24th of October. In husking, two qualities were made. Of the prime corn there was one hundred and ten and a half bushels; of the inferior, there was seven bushels, making in the whole one hundred seventeen and a half bushels. I am decidedly of opinion, that had the field been planted with any of our common seed, under the same circumstances, from fifty to sixty bushels would have been the extent of the crop. On this question I have consulted with those who are considered the most judicious farmers, who are acquainted with the land, and with the manner of its cultivation this season; and but one has given an idea of more than fifty bushels. It may seem very extraordinary, to make so great a difference between this, and that of our common seed; but should I do otherwise, I should trespass on my judgment. Much of the labour in the cultivation was done in broken time, and in connection with the other part of the field (half an acre, which was corn and potatoes,) so that I am prevented from that accuracy in the exact expense which I wish. I dare not say that the expense was less than sixty-five dollars, and this is the sum at which I fix it, including manure, land rent, and every other expense. The field was in the middle of the town, and much exposed: it was robbed of some of its best ears. It is thought that a loss was suffered in this way of at least three bushels, but this loss can neither be ascertained, nor brought into the account. All I have hitherto said has been in favour of this corn. I will now revert to the other side. Although it came to maturity the last season, and has done the same this, and although I believe that most of our seasons will give it its full growth, yet I think from the pure seed in some seasons the corn would be in danger of injury, as corn is commonly placed after husking. The reason for this opinion is, that I believe the cob to contain more moisture than that of our common corn. If I am right here, it reduces the value of the pure seed for common cultivation. As an experi-

ment, I planted this season, on the 20th of June, pure seed in fifty or sixty hills, some of it in cold, and some in warm ground: it was taken in Oct. 25th—it was well grown, and apparently ripe, and keeps well in trace, yet the cob was so full of moisture that I am confident it would injure, as corn is usually placed. I am far from considering the mixed-seed as liable to the above objection.

But if it could be made certain that the pure seed would in all seasons come to maturity as fully as our common seed, yet I think the mixed-seed is to be preferred for the heaviest crops; from the mixed seed I believe much more may be expected than from any corn we have among us. In saying this, I am aware to whom I am addressing myself, and that I ought to be diffident, and to think that a more competent judge than I know myself to be, might give a different opinion. Another objection is its weight. I weighed some of it as soon as taken from the cob; it was fifty eight pounds to the bushel—it was then thoroughly cured by kiln-drying, and its weight was then exactly fifty pounds. Here, perhaps, it is just to recollect its freeness from flint. After drying, it was ground into meal, and tried in various ways for bread, and the result was much in its favour. It requires of boiling water, to wet a pound, six and a half gills—at the same time, trial was made of some of our yellow meal, from the last year's corn, and it required only four and a half gills to the pound.

I have now, to the extent of my observation, traced this experiment, from the receipt of the seed to its conversion into bread. If I have been minute and prolix to tediousness, I must find my apology in the responsibility I have felt, from presuming that no other field of corn of this description is offered to your notice.

I am, sir, with much respect,

Your humble servant,

DANIEL BURNHAM.

Newburyport, November 18, 1822.

John W. Procter, Esq. Secretary of the Essex Agricultural Society.

JOHN LEES'S STATEMENT.

Newbury, November 19, 1822.

To the Committee on Indian Corn and other crops.

Gentlemen,

In the summer of 1821 one of my fields, generally known by the name of "Boynton Field," which had been for eight or ten years adapted to mowing, not exhibiting so good an appearance as usual in grass, I thought of making up the deficiency by raising a crop of potatoes; consequently, in the latter part of June, I mowed about three quarters of an acre, the produce of which as near as we could judge by appearances was a ton of hay of an excellent quality. I then broke up the land and planted the common white potatoes, putting a small shovel full of compost manure into each of the hills. The manner of ploughing, planting, hoeing, &c. was much the same as practised by the farmers in this vicinity; and in autumn the crop of potatoes was rising two hundred bushels. This success induced me to try what I could do with Indian corn; and late in autumn I carted on thirteen cart loads of compost manure, which lay in small heaps untill the following spring, when more of the field was broken up, and this manure spread over the land and ploughed in—then ploughed again and harrowed. The hills were made three and a half feet one way and three feet the other distant from each other, then a shovel full of manure, partly compost and part from the hog yard, was placed in each hill, and five kernels of the common eight rowed corn dropped in each hill. At the time of the first hoeing it was discovered that a red headed worm, measuring from a half inch to one and a half inches in length, was committing sad depredations; it was the opinion of many respectable men, that nearly one half was destroyed. This was replanted, but still the worms continued the destruction; and the season being far advanced, the defective hills were planted again with pumpkins, squashes, turnips, &c. The piece was hoed three different times, and at the second time the plough was used to facilitate the hoeing; and in autumn I harvested from one acre, measured and staked out by Mr. John Northener, one hundred and eight bushels and twenty quarts of

corn, weighing fifty nine pounds to the bushel; seventeen hundred and fifty pounds of pumpkins, one hundred and fifty pounds of squashes, and eighteen bushels of turnips. As to the precise times of hoeing, ploughing, planting, &c. I cannot ascertain, in consequence of my principal workman being deprived of his labour by indisposition, and the multiplicity of my cares made it impossible for me to pay that attention which was necessary: suffice it to say that my mode of management was much the same as that of farmers in general.

I am, gentlemen, with much respect,

Your obedient servant,

JOHN LEES.

HENRY LITTLE'S STATEMENT.

Newbury, Nov. 5, 1822.

To the Committee on Green Crops.

Gentlemen,

The following is a statement of the cultivation and production of one acre of Indian Corn raised by the subscriber in Newbury: The soil is a dark clay loam, and in 1821 was planted with beets and carrots, and manured with six cords of manure made by a brewer in Newburyport, and produced about 400 bushels to the acre. In May, 1822, the land was twice ploughed and planted in hills, 3 and a half feet apart, with 5 cords of compost manure put in the holes; four grains of corn were put in each hill on the manure and covered with a hoe; the corn is the eight rowed kind, and weighed, when harvested, 58 pounds to the bushel. The green, or unripe corn, was not measured: it was hoed three times, and late in the season; the few weeds that came up were destroyed. The stalks were topped the middle of September; it was harvested in October, and drawn to the granary and measured, and there were two hundred and thirty-two and a half bushels of ears, and a fraction over. By shelling four bushels of ears, the estimate was, that

there was one hundred and sixteen bushels and nine quarts of shelled sound corn.

The expense of cultivating the above acre of corn, calculating labour at four shillings.

Rent of Land		$9 00
Manure		15 00
May 3.	Ploughing	1 50
9.	Cross-Ploughing	1 50
10.	Planting and putting the manure in the holes	2 75
June 7.	Hoeing	1 00
12.	Transplanting or filling up the vacant hills, calculating to have three stalks in each hill	67
14.	Hoeing the second time	1 00
25.	Hoeing the third time	67
July 15.	Destroying Weeds	33
Oct. 7, 8.	Harvesting and Measuring	5 33
		$38 75

Yours, respectfully,

HENRY LITTLE.

N. B. The time of topping the stalks and getting in the bottom or butt stalks, not in the estimate. The value of the stover, [the stalks and husks] I think equal to one and a half tons of hay.

JOHN DWINELL'S STATEMENT—ON BEETS.

The following statement of a crop of Beets, with the manner of tilling the land, is submitted with the claim for the society's premium, viz.

The land in 1821 was in good heart and produced a crop of potatoes, and is part of the lot which enabled the present claimant to obtain the second premium the last year. A reference to the statement then made, will give the committee a full knowledge of it.

The present year the land was ploughed May 1st, and 2d,

eight inches deep, with one yoke of oxen, which occupied one day and a half; after which it was harrowed, and fitted for receiving the seed, which occupied one day. The remainder of the time was four days sowing, two days weeding, two days hoeing, and eleven and a half days digging, topping, weighing and housing the crop; in all twenty two days labour.

The quantity of manure was one and a half cord, and the quantity of seed two and a half pounds.

The crop, which was weighed, amounted to 29 tons, 0 hund. 1 quarter & 25 lbs.—or 580 hundred, 1 quarter & 25 lbs.

All which is respectfully communicated.

JOHN DWINELL.

Salem, November 11, 1822.

HENRY LITTLE'S STATEMENT—ON TURNIPS.

Newbury, Nov. 5, 1822.

To the Committee on Green Crops.

Gentlemen,

The following is a statement of the cultivation and production of a lot of English Turnips, raised by the subscriber, in Newbury. The soil is a clay loam, and had been down to grass six or seven years; in 1821 cut about one ton of hay to the acre; the last of June, 1822, it was mowed, and cut about half a ton of hay; the ground was then ploughed, and ten cords of compost manure (the principal part of the compost was marsh sod,) spread on and harrowed in, then it was ploughed in shallow ridges, three feet apart, and the seed sowed, with a machine, on the ridges, then a roller was made to pass over the same, and the sowing was finished. It took one pound of seed to the acre; they were thinned to the distance of one foot apart in the row; they were twice ploughed and hoed, and harvested the last of October, and the crop was six hundred and eighty seven and a half bushels.

The expense of cultivating one acre of turnips on the above mode, calculating labour at four shillings per day.

June 28, 29.	Ploughing, harrowing, and sowing,	$ 6 67
Sowed July 1.	Seed and manure, - - -	20 50
	Thinning, hoeing, &c. - -	5 33
	Harvesting, - - - -	3 33
		$35 83½

The quality of the crop. They were large, but in consequence of the drought they are fit only for stock.

Yours respectfully,

HENRY LITTLE.

SILAS AND JOSEPH LITTLE'S STATEMENT—ON TURNIPS.

Newbury, November 14, 1822.

To John W. Proctor, Esq. Secretary of the Essex Agricultural Society.

Sir,

We have this year cultivated an acre of common turnips on our farm in Newbury, and as we hope to obtain the Society's premium, we are bound to make a particular statement of the mode of cultivation.

A small part of this acre was sown with turnips the last year; the other part has been grass ground five or six years. This year, that part which was used for turnips we sowed with flax, after putting on it about five loads of manure, and pulled the flax as soon as the blowing had fallen off; then ploughed it, together with the grass ground, so as to make an acre, and after harrowing in part, carried on nineteen cartloads of compost manure, mostly sandy loam, to mix with our clay loam. The one part we spread on half the ground, and then ridged it with a small double-mouldboard plough, about two feet and nine inches apart. The other part was furrowed with the plough, and the manure put in the furrows at a like distance (the produce however was about equal,) and ridged as above, which covered all the manure. One pound and a half of seed was sown on the acre, one row on a ridge, and after the turnips were out of the

way of the flies they were thinned at the distance of 10 or 12 inches, then hoed twice, and ploughed once.

The time of harvesting began the 28th of October, and ended the first of November; and there were six hundred and fifteen bushels, trimmed fit for the market, besides five or six bushels defective or rotten and unfit.—The weight of a bushel 59 lbs.

Expense of cultivation.

Ploughing and harrowing - - -	$3.00
Manure - - - - - -	13.00
Seed - - - - - - - -	50
Ridging and sowing - - - -	2.00
Thinning - - - - - - -	2.75
Hoeing - - - - - - - -	2.50
Harvesting - - - - -	5.00
	$28.75

Sir, we are yours, with great respect,

SILAS LITTLE,
JOSEPH LITTLE.

DAVID LITTLE'S STATEMENT—ON MANGEL WURTZEL.

Newbury, November 18th, 1822.

To the Trustees of the Essex Agricultural Society.

Gentlemen,

The following is a statement of the situation, cultivation, and production, of a lot of land cultivated with Mangel Wurtzel, on my farm. The situation is as follows: a swell inclining southwesterly, and of a rich yellow loam; in 1821 was cultivated with beets, manured with about three cords of compost manure, and produced about five hundred and thirty bushels; 1822, May 9th, ploughed, 10th, harrowed and furrowed three feet apart, four and a half cords of compost manure was put in the furrows, and was covered with a plough, then a harrow was drawn lengthways of the ridges, to smooth the ground; the seed was then sowed, one row on each ridge, with four pounds of seed, (I think less than half would be sufficient); commenced ploughing be-

twixt the rows, and weeding, June 10th; continued weeding and thinning at different times till they stood ten or twelve inches apart in July 16th. The work was done principally by boys, estimating two boys to be equal to a man. Oct. 31, and Nov. 1st, and 2d, they were harvested by men and boys, and produced nine hundred and seventy and a half bushels of mangel wurtzel, two bushels of carrots, and one hundred and nine cabbages. Six swine were mostly fed with the thinnings, from the beginning of weeding till about the first of October; there were fruit trees on the above lot, sufficient, in my opinion, to produce twenty one barrels of fruit. The land, that I supposed to contain an acre, when it was measured by the surveyor fell short about ten or twelve rods, and I was obliged to make out the acre by taking a small piece which adjoined the same, which was sowed late in the season, and produced a small crop, and also a piece of about five rods which adjoined, were transplanted in vacant places among carrots, on account of which my crop was much less. The above lot you will see has been divided by the surveyor, staked off in half acre lots, No. 1, and No. 2. No. 1 produced five hundred and twenty three and a half bushels. No. 2 produced four hundred and forty seven bushels of mangel wurtzel, two bushels of carrots, and one hundred and nine cabbages.

The expense of cultivating the above lot of mangel wurtzel, calculating labour at four shillings per day.

Ploughing, May 9th,	$1.50
Harrowing,	50
Furrowing,	50
Manure,	9.00
Ploughing a ridge over the manure, and harrowing	1.00
Seed,	3.00
Sowing,	67
Weeding,	3.33
Harvesting,	4.46
dols.	23,96

I am, gentlemen, with respect,

Your obedient servant,

DAVID LITTLE.

DAVID LITTLE'S STATEMENT—ON RUTA BAGA.

Newbury, November 18, 1822.

To the Trustees of the Essex Agricultural Society.

Gentlemen,

The following is a statement of the cultivation and produce of two half acres of land, adjoining each other, cultivated with Ruta Baga, on my farm—No. 1 & 2. The soil is a light sandy loam. In 1821 it was planted with corn, and manured with about two cords of manure to the acre. The crop was small. June, 1822, the land was ploughed, harrowed, and furrowed three feet apart. Three and a half cords of yard manure was put in the furrows. The manure was covered with a plough drawn by a horse, by turning a ridge upon it. The seed was then sowed, one row on each ridge—one pound of seed. July 4th it was ploughed between the rows, and I began weeding and thinning, and continued at intervals till August 8th, leaving them 10 or 12 inches apart in the rows. They were twice ploughed and hoed. There were about forty four rows; ten of them were sowed with seed that I bought in New-York, represented to be of Cobbett's raising, but on account of age, or some other defect, but few vegetated. The 6th of July they were sowed over again; but it being late, and the season unfavourable, the crop amounted to almost nothing, though occupying the best part of the land. The land was measured and staked off in two half acres—No. 1 and No. 2. Lot No. 1 was harvested Nov. 4, and produced 254½ bushels. No 2 was harvested the 7th, and produced 227 bushels.

Expense of cultivating the above lot of ruta baga, calculating labour at 4s. per day.

June 3.	Ploughing, - - - -	*Dolls.* 1,50
	Harrowing and Furrowing, -	33
	Manure, - - - - -	10,50
	Covering the Manure, - - -	33
	Seed, - - - - -	75
June 6.	Sowing and covering Seed, - -	67
	Amount carried forward.	1408

Amount brought forward, - - - -	14,08
Ploughing, weeding and thinning -	2,79
Harvesting - - - - - -	3,34
Dolls.	20,21

I am, gentlemen, with respect,
Your obedient servant,
DAVID LITTLE.

No. III.—ON THE DAIRY.

The Committee appointed to consider the claims for the premiums,

REPORT:

That Mr. Joshua Lovett made on his farm, in Beverly, from the milk of six cows, (one of them a heifer three years old, came in the 12th day of January last) five hundred and twenty one pounds of good butter, in the year 1822, between the 20th day of May and the 1st day of October, and from the milk of the same cows, was produced seven hundred and fifty pounds of cheese, between the 20th day of May and the last day of September. The cows were kept in a common pasture from the 20th day of May until the 12th day of September, afterwards in fall feed, and fed in August once a day with the suckers from corn. The milk was preserved in earthen pans, and the cheese made in the common manner. Your Committee are of opinion that Mr. Lovett is entitled to the first premium of *fifteen dollars.*

Also that Capt. Stephen Abbot made on his farm, in Andover, from the milk of seven cows, two hundred and ninety six pounds of good butter, in the year 1822, between the 20th day of May and the 1st day of October, and from the milk of the same cows, during the same time, was produced seven hundred and ninety seven pounds of cheese, one hundred pounds of it made of new milk, and the rest of good quality. The cows were kept in a common pasture to the 23d day of September, afterwards in fall feed. The milk was preserved and the cheese made in the common manner. As no other application was made, your Com-

mittee are of opinion that Mr. Abbot is entitled to the second premium of *ten dollars.*

THOMAS STEPHENS,

Per order of the Committee.

Topsfield, October 2, 1822.

No. IV.—ON FAT OXEN AND SWINE.

The Committee appointed to examine the claims for premiums "on Fat Oxen and Swine" submit the following

REPORT:

That there was but one pair of fat cattle exhibited. These were offered by Mr. Benjamin Savary, from the farm of Gorham Parsons, Esq. in Newbury. They were the same that obtained the premiums for ploughing and working cattle the last year. They were nine years old, and continued to labour until the 9th of March last. From March to July they fed on hay and potatoes; after this time they had a full supply of Indian meal. Your committee consider these cattle of very fine quality, and well entitled to the first premium of *fifteen dollars.*

The exhibition of swine was much inferior to that of preceding years. This is to be attributed in part to the mistake in printing the premiums offered; it being intended to include weaned pigs from two to six months old, instead of from two to four months old, as printed.

Six boars were offered for premium—some of them of good quality. The committee have awarded to Mr. Samuel Hood, of Topsfield, the 1st premium, *six dollars.* To Mr. Benjamin Savary, of Newbury, the second premium, *four dollars.* The committee have also awarded to the Hon. Samuel Putnam, for a breeding sow from his farm in Danvers, the first premium of *six dollars.* The other swine exhibited did not come within the description, for which premiums were offered, and of course could not be entitled to any premium.

PAUL KENT,

Per order of the Committee.

Topsfield, Oct. 2, 1822.

No. V.—ON CIDER.

The Committee appointed to examine the claims for premium on Cider, submit the following

REPORT:

That but two parcels of ten gallons each were presented for examination, viz. by Mr. Aaron Perley, of Boxford, and by Capt. Dudley Bradstreet, of Danvers.

Mr. Perley's cider "was made of apples, known by the name of *Perley Everlasting*. They were gathered about the 20th of October, and kept under cover until near the 10th of November. They were then ground in a nut mill and made into cider, which was put into new casks, and racked off on the first of March following. Care was taken to have the apples when ground free from rot, and perfectly clean, and also to have the trough and press well cleaned before the making was commenced. Mr. Perley has four barrels of this cider at the present time. Your committee consider it of very superior quality, and well entitled to the first premium of *ten dollars*.

The cider presented by Capt. Bradstreet was of good quality; but in consideration of his having but ten gallons of this cider at the present time, your committee are of the opinion that his claim does not come within the description, for which the premiums were offered, and therefore cannot award a premium.

STEPHEN BARKER,
for the Committee.

Topsfield, Oct. 2, 1822.

No. VI.—ON NEAT LIVE STOCK.

The Committee appointed to examine the Live Stock, and award premiums, have attended to that service, and

REPORT:

That they have awarded the first premium for the best Bull to Col. Jesse Putnam of Danvers. - - *twelve dollars.*

The second best do. to Sam'l Chadwick of Bradford *eight dollars.*
The first best Milch Cow, to John Torrey of Newbury, *twelve dollars.*
The second best do. do. to Rich'd Crowninshield of Danvers, - - - - - - *eight dollars.*
The best 3-years old Milch Heifer, to Gideon Foster, Esq. of Danvers, - - - - *eight dollars.*
The best pair of 4-years old Steers, to Billy Emerson, of Topsfield, - - - - - *ten dollars.*
The best Merino Ram, to Benj. Savary, of Byfield, *six dollars.*
The second best do. do. to Richard Crowninshield, of Danvers, - - - - - - - *four dollars.*
The four best Merino Ewes, to Benj. Savary, of Byfield, - - - - - - - - *six dollars.*
The second best do. do. to Tristram Brown, of Ipswich, - - - - - - *four dollars.*
The best lot of Ewes, mixed blood, to Tristram Brown, of Ipswich, - - - - - *six dollars.*

Two Heifers, owned by Richard Crowninshield, one thirteen the other twenty-three months old, were very nice, but not entitled to a premium on account of their age; and two Bulls, one owned by Messrs. Putnam and Tucker of Salem, the other by the Hon. Wm. Bartlet of Newburyport, were considered by your Committee to be very valuable; as was likewise a Heifer owned by Mr. I. Lock of Andover.

Your Committee considered the Bull offered by Isaac Osgood, Esq. the handsomest built animal of the kind they had ever seen; but as he did not come within the terms on which the premiums were offered, no premium was awarded. The one owned by Samuel Chadwick, Esq. was a very handsome built Bull, and of a beautiful colour.

It was a subject of regret to your Committee, that so few Cows were entered for premium, they being of so much importance to our farms. The one owned by John Torrey is a Cow of no remarkable appearance; but from the statement given of which we had no reason to doubt, she is an uncommonly good Cow; her keeping was no ways extraordinary; yet the net income amounted to about seventy dollars for the last year, the

the milch was valued as if wholly sold for one shilling per gallon; the principal part was actually sold at that price.

The other Cow was far superior in appearance, but not so well reported to your Committee.

MOSES WINGATE, *per order.*

No. VII.—ON THE PLOUGHING MATCH.

The Committee on the Ploughing Match

REPORT:

That there were only four competitors for the premiums: these were, Benjamin Savary, of Newbury, from the farm of Gorham Parsons, Esq. John Brocklebank of Rowley, Moses Bradstreet of Topsfield, and Joel Wilkins of Danvers, from the farm of Samuel Putnam, Esq.

The trial was on a piece of grass-land, laid off in lots, each of one quarter of an acre. The land seemed never to have been ploughed with a deep furrow; and being gravelly, and hardened with the long continued drought, it was found necessary, after some furrows had been turned, to alter the gages of the ploughs, to enable them to penetrate to the requisite depth. Under these circumstances, the Committee consider all the ploughing to have been well executed. They recommend the premiums to be awarded as follows:

To John Brocklebank, ploughing with one yoke of oxen and a driver, 31 furrows, in 43 minutes, the first premium *sixteen dollars.*

To Benjamin Savary, ploughing with one yoke of oxen, without a driver, 30 furrows, in 45 minutes, the second premium, *twelve dollars.*

To Joel Wilkins, ploughing with two yoke of oxen and a driver, 29 furrows, in 38 minutes, the third premium, *eight dollars.*

For the Committee,

T. PICKERING,
Chairman.

EBENEZER BERRY'S STATEMENT—ON DEEP AND SHALLOW PLOUGHING.

To the Trustees of the Essex Agricultural Society.

Having learned that you had offered a premium, the present year, for the most satisfactory experiment in ascertaining the relative advantages of deep and shallow ploughing," I have been induced to offer for your examination the following statement.

In the autumn of 1821, my field was ploughed by the teams that contested for the premiums of your Society. It was laid out in lots of one quarter of an acre each. The land is level, and free from rocks. The soil is gravelly, and shallow, and only of middling quality. It had been in grass four years previous, and never had been highly manured. The common burden of grass produced upon it was not more than one ton to the acre. The whole field ploughed contained two acres and a half, one acre of which was ploughed in the spring of the present year; and on this part was the best crop. That which was ploughed in the preceding autumn at the ploughing match, was well harrowed in the spring, and furrowed, eight rows to the lot, two rods wide. Twelve ox loads of manure were put to the acre, in the holes. The manure was a mixture of the droppings of horses and neat cattle, in about equal quantities, taken from the barn yard. The ground was planted with Indian corn, from the 10th to the 12th of May. The eight rowed corn, and that which is commonly cultivated in this vicinity, was the kind planted. It was hoed three times in the usual manner. Every part was managed as nearly similar as possible. Each lot was gathered and accurately measured by itself. Lots No. 2 and 3, were the most gravelly, and most exposed to the drought; and the whole field suffered considerably for want of moisture. I am of the opinion that it would have been highly beneficial to have cross-ploughed the land in the spring. The following is the product of each of the lots.

No. 1, ploughed by 28 furrows, 4½ inches deep, situate on the western side, yielded twenty and a half bushels of ears.

No. 2, ploughed by 28 furrows, 6 inches deep, yielded nineteen bushels of ears.

No. 3, ploughed by 22 furrows, 8 or 9 inches deep, yielded twenty-three bushels of ears. This ploughing was apparently deeper than the soil; but in the latter part of the season the crop suffered much less by the drought than either of the lots; and had the soil been as good, the crop would have been much superior.

No. 4, ploughed by 28 furrows, 6½ inches deep, yielded twenty-two and a half bushels of ears.

No. 5, ploughed by 28 furrows, 6 inches deep, yielded twenty-one bushels of ears.

No. 6, ploughed by 36 furrows, 6½ inches deep, yielded twenty-two and a half bushels of ears. The soil of this lot was rather better than the other parts of the field.

From the result of this experiment, my opinion is decidedly in favour of ploughing our lands much deeper than is usually practised by our farmers. Especially is it beneficial on lands liable to be injured by the drought.

EBENEZER BERRY.

Danvers, November 19, 1822.

I certify, that I assisted in measuring the before mentioned corn, and that the foregoing statement is correct.

JONATHAN DUDLEY.

Essex ss. Nov. 19, 1822. The above named Ebenezer Berry and Jonathan Dudley, declared the statement by them subscribed to be the truth, before me,

JOHN W. PROCTOR, Jus. Pacis.

Salem, Jan. 1, 1823. At a meeting of the board of Trustees, Voted, that a premium of *fifteen dollars* be awarded to Mr. Ebenezer Berry for his experiment in endeavouring to ascertain the relative advantages of deep and shallow ploughing.

Attest, JOHN W. PROCTOR, Secretary.

No. VIII.—ON WORKING OXEN.

The Committee on Working Oxen report, that the number of competitors for premiums were less, and the cattle offered, inferior to those in years past.

Your committee do award to Mr. John Brocklebank, of Rowley, the first premium of *fifteen dollars.*

To Mr. Joseph Osgood, of Danvers, the second premium of *ten dollars.*

They would further remark, that the four-year old steers of Mr. Jeremiah Hathaway, of Marblehead, were very large, and worked in a manner highly acceptable to the committee.

That the steers from the farm of Hon. S. Putnam, in Danvers, were handsome and worked well.

And that the same may be said of the steers owned by Mr. Billy Emerson, of Topsfield.

It is to be regretted, that our farmers should pay so little attention to the training of their cattle. The object in offering premiums is rather to produce skill in management, than strength of Muscle. Nature gives the one, art the other.

For the Committee,

BENJ. T. REED,

Chairman.

Topsfield, Oct. 2, 1822.

No. IX.—ON DOMESTIC MANUFACTURES.

The Commiitee on Domestic Manufactures respectfully

REPORT:

That the articles exhibited for their inspection were generally of good quality, and superior to those of the same kind produced the last autumn. The number of articles exhibited were so small, that the Committee did not feel at liberty to award the full amount in premiums authorised by the Trustees on this subject. They were much pleased with some cloths exhibited from Crowninshield's Factory in Danvers. In the colouring and finish they were very superior.

For articles of domestic manufacture, they have awarded the following premiums:

To Mr. James Howarth, of Andover, for Flannels of very superior quality, equal to any imported, a premium of *six dollars.*

To widow Jane Swan, of Methuen, for a piece of Table Linen, distinguished for its superior bleach and beauty, the first premium of *six dollars.*

To Susan Young, of Byfield, for a piece of Table Linen, of similar manufacture, second premium, *five dollars.*

To Mrs. Crowninshield, of Danvers, for several pieces of goods of the same kind, third premium, *four dollars.*

To do. for a quantity of Linen Yarn, a premium of *three dolls.*

To do. for a small quantity of water-rotted Flax, very neatly prepared, a premium of *two dollars.*

To Betsey Merrill, of Salisbury, for twenty-five bunches of White Linen Thread, neatly manufactured, a premium of *three dollars.*

To Mrs. Hannah Perley, of Boxford, for a piece of Vesting, a premium of *two dollars.*

Mrs. Abigail Bricket, of West Newbury, for a Yarn Shawl, a premium of *two dollars.*

To John Hale, of Boxford, for a pair of Pegged Shoes, substantially made, a premium of *one dollar.*

To Mr. Ebenezer Burnham, of Ipswich, for a Drab Kersey Wrapper, of good manufacture, a premium of *two dollars.*

The Committee had hoped to have had the pleasure of examining other articles of domestic manufacture than those exhibited; particularly straw bonnets and hats, and carpetings. They are sensible that these articles have received considerable attention in the county, and would have been pleased to encourage further attention by awarding premiums, had opportunity offered. They believe it to be the best interest of our country to encourage manufactures of this kind, and hope that on future exhibitions, the number of articles will be in proportion to the importance of the subject.

For the Committee,

BENJAMIN PARKER,

Chairman.

Topsfield, Nov. 2, 1822.

PREMIUMS

OFFERED BY THE

ESSEX AGRICULTURAL SOCIETY,

IN

1823.

The Committee of the Trustees appointed to propose objects for premiums, adverting to the original design of the institution, —the improvement of the general husbandry of the county— have thought it advisable, at this time, to depart materially from what seems to have been a leading principle, in all the Agricultural Societies of the country—that of offering premiums chiefly for certain specific articles of husbandry, instead of the combined improvements of entire farms.

Since the formation of the Essex Society, specific premiums have produced valuable effects; by demonstrating, that with high manuring, and good culture, some former usual crops may be doubled, trebled, and even quadrupled. But the important question is—not what small lots in or near market towns, and abundantly supplied with manures, may be made to yield; but how the productive powers of *farms* can be essentially increased: and this can be effected only by a better management in all articles of husbandry. With this in view, the Committee propose to *extend* the encouragement heretofore given for *general* improvements; and offer the following premiums.

1. MANAGEMENT OF A FARM.

For the management of a farm, in its tillage, mowing, orcharding and pasturage: the quantity of land appropriated to each—their cultivation—the means and the manner of making, increasing, preserving and applying manures—their quantities—

the respective crops and products—the quantity and management of the live stock—and the quantity of labour employed—to be detailed.

For the best - - - - - *thirty dollars.*
For the second best - - *twenty five dollars.*
For the third best - - - - *twenty dollars.*
the fourth best - - - *fifteen dollars.*

II.—DAIRY STOCK—SOILING.

For experiments in feeding milch cows on green crops, from the middle of June to the middle of October, by supplying them to the full with those crops, in their stables, without turning them to pasture. Feeding cattle in this manner is called *soiling.*

For the best, - - - *twenty dollars.*
For the second best, - - - *fifteen dollars.*
For the third best, - - - *ten dollars.*
The whole process to be detailed.

REMARKS.

The green crops may be rye (sown the preceding year) oats, barley, millet, Indian corn, clover and various grasses. Any sorts of grain sown to produce fodder for soiling, after being harrowed in, should be rolled, to make the surface and the ground smooth for mowing. The clover and upland meadow grounds, destined for soiling, will be better for rolling, with a heavy roller, to make a smooth bottom, without which the mowing cannot be close; and if not close shaven, the thickest part of the grass will remain uncut.

If the soil be rich and the surface smooth the grass may be cut when only three or four inches high, and will then yield a good swarth. Such ground well set with the grasses which produce what is known among us as English hay, and inclined to moisture, may in this manner be mown three or four times in a season. The cutting of the rye, oats, barley and millet should commence as soon as they will yield a good swarth, and be finished before they have passed the flowering state. If mown before they flower, they will shoot again; and if the growth be rich, yield second crops.

Indian corn will be well grown for soiling by the 10th or 15th of July; and will continue green, and in full sap until the last of August. And in order to continue a supply of this rich green food—to which probably no other vegetable of our country is equal, especially for milch cows. Pieces of land may be planted in succession, so that some may be in full sap to the last of September, when, in Essex, frosts usually strike the blades, and greatly lessen their value.

If there be a piece of rich mowing land in the farm, its second or third crop will furnish green fodder to the middle or last of October. Perhaps late sown oats, hardier plants than Indian corn, may supply the place of grass. Pumpkins, also, during this month and the next, will furnish a most valuable food.

All the sorts of fodder above mentioned, like the young grasses of the spring, naturally dispose cattle to a degree of looseness, though probably without injuring them. But if any of them operate to an excess, a little good hay will furnish a useful corrective.

After November, potatoes, mangel wurtzel and carrots, added plentifully to their dry fodder, even, if this be only barley, or oat straw, or wet or low ground meadow hay, will doubtless keep cows in milch till within a few weeks of their calving.* Cows, during the time of their going dry, and other stock at all times, fully supplied with ruta baga, or common turnips, with the same poor dry fodder, may be kept in high condition. In England, cattle intended for beef are often fattened on wheat straw and turnips, giving of the latter as many as they will eat. They commence feeding in this manner in Autumn, and by the spring the cattle are fat for the market. The cattle thus fattened, and in so short a time, are of moderate sizes.

Rye, oats, barley and millet, when destined for soiling, should be sown twice as thick as when intended to ripen their seeds.

*An observing farmer, long ago expressed to me the opinion, that cows should go dry five or six weeks before calving, to give time for the milk vessels to be distended, and the bag enlarged; in the language of farmers, for the springing of the bag. It was his opinion that the greater increase of milk after calving, would amply compensate the loss of going dry so long.

In like manner, Indian corn may be planted in continued rows only so far apart as to admit a small plough in its culture, and with the plants only four or five inches apart in the rows. The surface of the ground should be smooth in the rows, so as to admit of mowing the corn.

The farmer who shall pasture some of his cows, and soil the others, will add to the value of the experiment, by keeping their milch separate, and noting their relative quantities from cows of equal goodness, and the quantity and quality of the butter made from each set.

III. THE DAIRY.

For the greatest quantity of good butter, in proportion to the number of cows producing it, (not fewer than four) made on any farm, from the 20th of May to the 20th of November, twenty-six weeks, and the quantity of butter averaging not less than seven pounds per week for each cow, *twenty dollars.*

For the second greatest, - - - *fifteen dollars.*

For the third greatest, - - - *ten dollars.*

The kinds of food and the management of it to be detailed.

REMARKS.

The object of Agricultural institutions, as already observed, is *improvement:* and in Essex, none seems to be more wanted than in *milch cows.* If the society were to continue their premiums, during any length of time, merely for the greatest quantity of butter, they would not enforce any improvement in the quality of those animals. Seven pounds of butter a week, for each cow, is less than half what the Oakes cow of Danvers produced, in the same time. The seven pounds a week, therefore, are very attainable by every farmer who will *improve his breed of cows,* and *feed them to the full* with juicy and highly nourishing food. The Committee trust they do not entertain a groundless hope, that the premiums here offered will have claimants; and that in some future years, the Trustees will be justified in confining these premiums to cows yielding ten, twelve, and fourteen, pounds of butter a week, for twenty six weeks in the year.

IV. TURNING IN GREEN CROPS AS A MANURE.

For the best experiment of turning in green crops as a manure, on not less than one acre, - - *fifteen dollars.*
For the second best, - - - - *ten dollars.*
For the third best. - - - - *five dollars.*

REMARKS.

The claimants must give a particular account of their respective processes, and the results. The object aimed at is, to ascertain whether land can be manifestly improved by turning under green crops, and to what degree enriched. Each experimenter will follow his own judgment in his process; but the following intimations may merit his attention.

The turning in of green crops is a very ancient, though not a very general practice. Its utility has lately been called in question. Hence the desire to bring it to the test of fair experiment.

Take an acre of land, so far exhausted at the last crop as to render it inexpedient to introduce another without a good manuring. Plough it in the spring, and sow it with oats, barley, buck-wheat, or millet—and not be sparing of the seed. When the crop shall be full grown, but still in blossom, plough it in, and sow it again. When this second crop shall be full grown, plough it in. The next year repeat this process—again ploughing in two crops; the last by the beginning of October. It may then be sown with winter rye, to produce a crop of grain at the next harvest—sowing five or six pecks, because sown so late.—Or it may lie till the ensuing May, and then be planted with Indian corn. The product, compared with the last of the same acre, prior to the commencement of the experiment, especially if a crop of the same kind, will show the value of the green crop ploughed in.

ANOTHER MODE.

The acre being divided lengthways into two equal parts, plough the whole uniformly in the spring. Sow on one part two bushels of oats or of barley, or a bushel of buck-wheat, or three or

four half pecks of millet; and harrow the whole acre alike, and so as duly to cover the seed which has been sown. When the crop has attained its full growth, but is still in blossom, plough it in; ploughing the vacant half acre at the same time, and to the same depth. Sow the first half acre again immediately, and harrow in the seed, harrowing the other half in the same manner. The next year repeat the same process. Then the whole acre may be sown with winter rye (3 pecks on each half;) or the land may lie (as in the process first proposed) to be planted with Indian corn the ensuing spring. In the third year, the crop put in must stand to ripen. The produce of each half acre (both being sown or planted, and cultivated in the same manner) must be kept by itself, and accurately measured. The difference between them will show the value of the green crops ploughed in.

Every experimenter will perceive that no manure whatever is to be used—the crops sown, and the weeds ploughed under, excepted.

Until ploughs constructed for the purpose of completely turning in green crops shall be introduced, it will be necessary to roll flat the green crop before ploughing, or it cannot be duly covered. Perhaps a small roller, or what is called a *foot*, only of a large size, may be attached to the fore end of the plough beam, to press down the crop to the ground, and thus cause it to be effectually covered. Such a roller, or foot, will serve as a gage for the depth of the furrow in which the crop shall be buried.

V.—CIDER.

For the best cider, the pure juice of the apple, which shall be made in the present year, not less than eight barrels, - - - - - - - *ten dollars.*

For the second best - - - - *five dollars.*

The greater part of the cider may be sold, if the owner please, only reserving one cask, of which a sample is to be produced at the Society's public exhibition in 1824; with good evidence that the casks sold were equal to that reserved. If sold, the claimant will state when, to whom, and at what prices; and describe his whole process in collecting, sorting and keep-

ing the apples, in making the cider, conducting the fermentation and fining, if any artificial fining be used, and in preserving the cider in the cask.

For some information of an eligible process in making and managing cider, the Committee refer to the intimations contained in the Explanatory Observations subjoined to the list of premiums for 1821.

VI. FOREST TREES.

The same premiums that were offered in 1821 and 1822; to which intended claimants are referred. And they are desired to give notice of their proposed claims to the Secretary, John W. Proctor, Esq. in Danvers, before the first of July next.

VII. POTATOES.

Numerous experiments have been made, to increase the products of this root, and premiums have been awarded for the greatest; but no measures for improving their *qualities* have fallen under the observation of the Committee. It is well known that the seeds in the *apples* or *green balls*, which grow on the tops of potato stalks, will produce potatoes, which, planted for one year, and their produce a second year, will yield well sized potatoes.—It is from these small seeds that all the varieties of potatoes have been produced. It was in this way that a distinguished farmer in Ireland—a country so famous for the culture of potatoes—obtained excellent kinds. From the numerous seeds in every ball, a variety of potatoes may be expected; some early, some late in ripening—some yielding small, and others abundant products—some watery, and others mealy and well flavoured.

Expectations have often been formed of raising potatoes of the best qualities, by planting those brought from the British Isles; but disappointment is the common result: the products of the first year have scarcely borne a resemblance to the fine originals. It is very possible, and not improbable, that some sorts superior to any in cultivation among us, may be obtained from the small seeds found in the green balls. To encourage the necessary experiments, the following premiums are offered.

For the best and most valuable potatoes, taking them for all in all, raised from the seed of the apples or green balls, samples of which shall be produced at the Society's public exhibition in 1825, - - - - - - - - - *ten dollars.*

For the second best, - - - - - *seven dollars.*

For the third best, - - - - - - *five dollars.*

The claimants are to detail their whole processes, and state the results.

REMARKS.

Some sorts may be of superior excellence for their mealiness and flavour, but moderate in their product; some, not so well flavoured, may be very abundant in quantity, and highly valuable for feeding live stock; some, very early ripe; some, growing compactly, and so expeditiously harvested. The sorts which, combining most of these good qualities, shall be judged the most valuable, will be preferably entitled to the premiums, without excluding claims for potatoes of highly superior goodness, although less productive. To facilitate the execution of these novel experiments, the Committee offer the following

DIRECTIONS.

The experimenter, having determined with what sorts of potatoes he will make his trials, will gather the balls when the stalks, by their drying, indicate a ripeness in the seeds; and if they are not quite soft, so that the seeds will easily separate from the pulp, they may be laid by (out of the way of frost) until the pulp becomes soft. Then mash them with the hand, and with the aid of water separate and wash the seeds clean. These, being dried, may be preserved like garden seeds, until the ensuing spring. Then sow them in rows, in a bed of rich garden earth, just as small garden seeds are sown. The rows may be ten inches apart; and the plants, when grown enough to be thinned, may stand four or five inches asunder. Keep them clear of weeds, and stir the earth between the rows. The supernumerary plants, arising from the thinnings, may be transplanted, if needed, to another bed.

In Autumn, or when the stalks become so far dried that the roots cease to grow, dig these up carefully, so that the potatoes growing on the same plant may be saved by themselves; for it may happen that each distinct plant may produce a sort different from the rest. The bulbs, or roots, of the first year, will be very small. In the next spring choosing a piece of rich ground, plant each sort in a hill by itself. The product of this year will furnish bulbs big enough to be boiled. And this will be the time for selecting the best. Many sorts may not deserve any further attention; but some may be of excellent qualities, as to time of ripening, texture, flavour and productiveness. Their several qualities should be carefully noted, and again be separately preserved and planted another year; when they will probably have attained all the perfection of which their natures admit.

Lancashire, a western county of England, as well as Ireland, is distinguished for producing good potatoes. Ireland is remarkable for the moisture of its climate; and the western is more moist than the eastern coast of England. Both are many degrees farther north than Massachusetts; and are exempt from the burning heats and droughts of our summers. These circumstances suggest the propriety of our planting potatoes on moist and cool grounds; thus assimilated, in some measure, to the soils of Ireland and Lancashire.

VIII. PLOUGHS AND PLOUGHING.

Some ploughs are of easier draught, and make better work, than others; and some oxen draw or plough extremely well without a driver. The design of ploughing matches is to attain all possible perfection in both. The premiums, therefore, under this head, will be confined to efficient ploughs of easiest draught, drawn each by one yoke of oxen without a driver, ploughing one quarter of an acre, and turning the best furrow, at least five inches deep, and in the shortest time compatible with a continuance of the labour to complete the ploughing of an acre, if that were required.

For the best plough, team and work, - *fifteen dollars.*
For the second best, - - - - *twelve dollars.*
For the third best, - - - - *eight dollars.*

IX. SUMAC.

The premium for this article is continued of course, as the claim is to be presented the ensuing autumn.

GENERAL REMARK.

The Committee repeat—and desire it may be remembered—that premiums claimed are not to be awarded, unless the subjects of the claims are decidedly meritorious. That is, the respective experiments must be so conducted as to exhibit results worthy of encouragement and imitation—or decisive of a question of which the solution is sought.

Where a premium has heretofore been awarded to any person, he is not to receive another for the same object. And where any plough has obtained a premium, another is not to be awarded for the same plough, nor for one of the same mould Some important improvement can alone justify an appropriation of the Society's funds, in cases of this nature.

To allow time for enterprising farmers to make preparations for becoming competitors for the premiums now offered, the Committee are of opinion that there should be no public exhibition in the present year. The disposable funds of the Society will thereby be increased, to reward successful candidates for premiums the year following. But whether there shall, or shall not, be a public exhibition in the present year, the Society, at their approaching annual meeting, will determine. As, however, some claims were to be made in the present year, these may be sent to the Secretary of the Society, to be laid before the Trustees, for their decision thereon.

The Committee propose no premiums for the greatest quantities of any kind of crops. The experiments already made have demonstrated what is practicable; and if those known examples of success are insufficient to stimulate general exertions, the usual premiums must prove ineffectual.

Essex not being a county for grazing and fattening cattle much beyond the farmer's own wants, this article also is discontinued in the list of premiums.

As to the usual live-stock—working oxen, milch cows, young cattle, sheep and swine—they are to be considered as comprehended in the Management of a Farm, additionally to the provisions under the heads No. III and No. VIII, relating to the Dairy and Ploughing Matches; and to the following article.

X. FOR IMPROVING OUR NATIVE BREED OF NEAT CATTLE.

The first most celebrated breeder of live stock, in England, was the late Robert Bakewell; to whom, Mr. Arthur Young says, that country is indebted for *just principles of breeding.* And a later eminent breeder says, that "before Mr. Bakewell's days, we had no criterion but size; nothing would please but elephants and giants." And "he declares that Bakewell enabled those who followed his ideas to produce two pounds of mutton, where only one was produced before." The following were the points to which Bakewell specially attended: "fine forms, small bones, and a true disposition to make ready fat: which indeed is inseparable from small bones, or rather fine bones and fine forms, or true symmetry of the parts."

But Bakewell's prime object, in improving cattle and sheep, was to render his animals most profitable in *beef* and *mutton.* And he succeeded in obtaining forms indicating *strength of constitution—a disposition to fatten*, and *at an early age—weightiness in the most valuable parts—with lightness of offals.* If there was deficiency in any point, he would cross his animal with one that was amply supplied in that part; and if any point of his animal was too heavy, by an opposite cross he would reduce the superfluity. By such management, diligently pursued, he at length gave to his stock the shape and qualities he desired.

So far as we breed domestic animals in this county—and the observation will apply to our whole state, and generally to all New-England, we must extend our views beyond *beef* and *mutton;* and with the former combine *milk*, *butter* and *cheese*, and a fitness for *labour;* and together with *mutton* aim at the greatest quantity of the *most useful wool.*

If Bakewell could alter the shape of his cattle, and lay flesh and fat on the most valuable joints—as was the fact—can it be doubted that, by similar attention, the quantity and quality of

the milk of our cows may be increased and enriched? But to obtain this improvement, calves should be raised from such cows only as excel in these two particulars.

It seems to be the best opinion, that of the different breeds of live stock, those of the largest size are not the most profitable. The breed of cattle, however, should be such as to produce oxen a single pair of which, at their full growth, should have strength sufficient, on proper tillage land, with well formed ploughs, to open a furrow to the depth of five, or even of six inches. As to the form of the different kinds of live stock, an eminent naturalist and farmer in England has thus expressed his opinion:—"The more deep and capacious the chest, and the shorter and lower any animal is, relative to its weight, the better adapted it will be to live and fatten on little food, the more labour it will go through; and I have always found the most short-legged oxen to be the best labourers."

The foregoing rules of breeding, and description of good live stock, being the result of the experience of eminent English farmers and breeders, merit the particular attention of all who shall attempt to improve upon our present races of domestic animals; and are here introduced to furnish them with useful information. And in the hope and expectation that such improvements will be undertaken, the following premiums are offered:

To the person who shall produce at the public exhibition of the Society, in the year 1828, any number of milch cows, not less than four, of our native breeds, showing manifest improvements therein, by an important increase in the *quantity*, and maintaining, at least, if not improving, the *good quality* of milk—the latter to be tested by the quantities of butter made in the six months next preceding the exhibition—

For the best - - - - *thirty dollars.*
For the next best - - - *twenty-five dollars.*
For the third best - - - *twenty dollars.*

For the best pair of working oxen, or well grown and well trained steers, improved on the principles above stated, and exhibited at the same time—

For the best pair - - - *twenty dollars.*
For the second best, - - - *fifteen dollars.*
For the third best, - - - - *ten dollars.*

It will readily be admitted that our live stock demand great improvements; and no one will question whether such improvements are practicable. They ought then to be attempted. It will avail little to bestow premiums merely for the best that shall be produced; for such premiums might be given for a century, without effecting any real improvements; and thus, as to live stock, defeat the object for which the Society was formed. The known excellency of some oxen and cows, of our native breed, give assurance to judicious and enterprising farmers, that their numbers may be multiplied by observing the well-tried rules of breeding. The Oakes cow has probably not been surpassed in any country. By some she was judged to be under the size of our common cows. Her short legs probably gave rise to that opinion. There are, however, many larger cows in the county.

The best bulls and cows do not always produce a progeny equal to the parents; but experience has shown, that from such only the highest improvements may be expected. The same observation applies to all other kinds of live stock.

Farmers who shall effect great improvements in live stock, while they render a lasting benefit to their country, will lay a foundation for advancing their own interest, in the demand, and consequently increased prices, of their improved breeds.

Reflecting farmers, who shall become candidates for premiums, will be aware, that if their exertions should not obtain the honour of a prize, they will not pass unrewarded; as all the improvements they make will either give them immediate profits, or add to the value of their farms. The direct object of premiums is not to excite merely trials of skill, but to add to the solid interests of farming; and he, who shall show how we may add most to that solid interest, will obtain the highest prize.

In behalf and by order of the Committee,

T. PICKERING.

Salem, January 22, 1823.

AN

ADDRESS

TO THE

ESSEX AGRICULTURAL SOCIETY,

IN MASSACHUSETTS,

At Topsfield,

Oct. 6, 1823.

By FREDERICK HOWES, Esq.

SALEM:
PRINTED FOR THE SOCIETY BY W. & S. B. IVES.
1824.

ADDRESS.

Agriculture is a subject on which it is difficult to say any thing that has the merit of being both original and useful. In England about seven hundred different volumes have been published on this subject within the last thirty years. Though our own country has not been so prolific in agricultural publications, yet more has been written than most farmers have time and inclination to peruse. It is not with the expectation of communicating any original information on this topic, that I have been induced to comply with the request of the Trustees to make some remarks on this occasion, but from a wish to call your attention to this most important of all arts, to some of the means by which it may be improved in this county, and to some of the motives to make spirited and vigorous exertions for that purpose.

In a poem on Agriculture, and one of the finest ever written on any subject, we are told that it was not the will of the Deity that the mode of cultivating the earth should be easy, but that it should require art and labour to sharpen the minds of men by the cares and difficulties attending it.* Though this is the sentiment of a heathen poet, every practical farmer is convinced that it is no fiction.

In sacred writ we are informed that the earth was cursed for the transgression of man, that it should bring forth thorns and thistles, and that man should eat bread in the sweat of his

*Pater ipse colendi
Haud facilem esse viam voluit, primusque per artem
Movit agros, curis acuens mortalia corda.

Georgica I. 121.

brow. It is supposed by some that after the flood this curse was removed when the Supreme Being said he would no more curse the earth for man's sake. Others suppose the earth to be still under the influence of this malediction. We must leave this question to be settled by learned divines. It is sufficient for us as practical farmers to know that man must still get his bread by the sweat of his brow, that to the slothful the earth still brings forth thorns and thistles, but that she abundantly rewards the cares and labours of the active, industrious, and skilful husbandman. Our beneficent Creator has placed us here to cultivate the earth, and all the seeming difficulties and hardships attending it are tempered with much kindness, and many mercies. They quicken and invigorate the corporeal and mental powers, and may in their ultimate consequences be real blessings.

One of the most important objects for the attention of a farmer is, by what means the soil can be rendered sufficiently fertile for the production of good crops, and where it is already fertile, by what means its fertility can be continued or increased. It is unfortunately the case in many parts of the United States, especially those bordering on the Atlantic, that lands originally fertile, have been so exhausted by a succession of crops in tillage with little or no manure, as to be of small value. In some of the Southern states this system of killing land as it is termed by one of their best farmers has been carried to such an extent, that there are many tracts of land which once produced great crops, now entirely exhausted and converted into a barren sand. In our own state and county perhaps there are not many instances where the impoverishment of the soil has been so extreme, but I apprehend that the fertility of a considerable portion of our land has been diminished, that in many instances it is now on the decline, and that there is much land in New-England, that will not produce more than one half of what it formerly did.

This practice cannot be too much reprobated. It is disgraceful and ruinous to the farmer, a criminal abuse of the bounties of nature, and if universally carried to the extent to

which it has been in some instances, would render the earth little better than an uninhabitable desert. The powers drawn from the soil by the production of crops, should be restored to it by manures in some shape or other. The farmer whose husbandry thus exhausts his land of its fertility ought not to be called a cultivator of the Earth, but a robber of the soil, a robber of the public, and of future generations. This sort of robbery has been ten thousand times more hurtful to the prosperity of the community, than all the highway robberies committed in New-England from its first settlement to the present time.

A good farmer would not only endeavour to preserve the original fertility of the soil, but to increase it, till it was carried to the highest degree of which it is susceptible, consistent with his interest and profits. It is a most important inquiry by what means can a sufficient quantity of manure be obtained, what kinds will be most beneficial in proportion to the expense, what are best adapted to the soil of his farm, and what will be the most beneficial application of them? Here the most learned man and the most skiful farmer, will find ample occasion for all the knowledge they have derived from study and practice, science and experience.

Barn or stable manure is one of the best means of enriching land where it can be procured in sufficient quantities; but according to our present modes of farming this can seldom be done, except in the vicinity of large towns, and even then, I doubt whether farmers can afford the high prices for stable manure at present demanded. It is not difficult for a man of fortune who regards not the expense, to enrich his land so as to produce great crops. But the question with farmers in general is, and ought to be, how it may be profitably done. If the expense exceeds the product, it will not do for them. It is not sufficient that the crops are large, but do they afford a net profit. The true object of the farmer is to cultivate his land in such a manner as will afford the largest profit, after deducting rents, taxes, labour, and all expenses of cultivation.

The manure from the barn I believe might be very much increased, perhaps doubled or tripled, if the yard were cov-

ered with earth, turf, or vegetable matter to a depth sufficient to absorb all the liquid manure. Every part should be secured as much as possible from exhalation by the heat of the sun.

It seems to be generally agreed by English Agriculturalists, that stable manure by fermenting, loses a great part of its value. Mr. Coke, the great English Commoner and Agriculturalist, says, that by using his manure fresh, it went twice as far as it did formerly, when used after fermentation. As a general rule it cannot be doubted that it is much better to apply manure to land in tillage than in grass. In the latter case a great portion of it is lost by evaporation.

Mineral Manures. It seems very desirable that the mineral manures should have a much more effectual and extensive tria than they have ever had in this county. The virtues of lime have been so highly extolled, and it has been in fact so powerful a fertilizer of land in other countries, that it deserves a full and fair experiment here. Experience seems to have shown that lime when applied in so small a quantity as twenty bushels to the acre, may alter the texture and constitution of the soil, and render it fit for the production of crops of which it was before incapable.

A late and excellent writer on agriculture says, "it is inconceivable what effect lime has on the productiveness of the earth. Philosophers have investigated its nature and properties to find out the secret spell by which it works, and while some have attributed the effect to its power of decomposing putrescible matter, or to its affinity for carbonic acid, others have ascribed it to the change effected on the constitution of the soil. All however are agreed that no land after its first and natural richness has been exhausted by cropping, can continue fertile without a mixture of this fossil. Its use was the first thing which revived English agriculture after it had long languished in the most abject state, and the first thing which raised Scotland to opulence and independence. Lime as a manure has found its way into France and Germany, and it is blended with the soil along the shores of the Baltic. In Southern latitudes this mineral manure is more generally applied, either incor-

porated with clay in the shape of marl, or combined with sulphuric acid in that of gypsum." *

There is one circumstance which seems to render the beneficial effect of lime in our county very probable. The soil of Essex with very few exceptions, is either what Geologists call the primitive rocks, earth resulting from the decomposition of these rocks, or of alluvial, the washings and depositions of the primitive. We have I believe no limestone, and the quantity of lime in our soil must of course be much smaller, than in a soil resting on lime stone. The less we have in our soil, the more beneficial would its application probably be, and greater in such a soil as ours, than in one of a different formation. An additional incitement to the use of it is, that in Pennsylvania, where probably more lime has been used for manure than in all the other states, a much smaller quantity has been found sufficient than is frequently applied in England and Scotland, probably owing to the greater portion of calcareous matter contained in the limestone used in this country. Thus though lime might be dearer here, in proportion to its bulk than in Great-Britain, it might be cheaper as a manure on account of its superior strength, or in other words, the greater portion of pure lime in our limestones. If twenty, thirty or forty bushels of lime applied to an acre will produce a great and permanent improvement in the constitution of the soil, and contribute by its solvent powers to render animal and vegetable manures more efficacious, then lime may prove one of the most effectual modes of enriching our lands.

Gypsum or Plaster of Paris. This mineral has in many parts of our country produced a wonderful effect, and contributed perhaps more than any other cause to the improvement of agriculture in those places. It is supposed that near the sea coast it has little or no effect, and has in some instances been tried without success. It appears to me that further trials are desirable. It is a manure so cheap, so small a quantity as one or two bushels being sufficient for an acre, has produced such great crops elsewhere, that it seems expedient to

* Letters of Agricola.

make additional experiments to ascertain whether it may not be beneficial for some kinds of soil in our county, or perhaps for some particular crops. The reason assigned by that eminent chemist, Sir Humphrey Davy, why gypsum produces little or no effect on some soils, that those soils probably contain it already in sufficient quantities, does not appear satisfactory. The mode in which it operates is not well understood, but if our soils already contain gypsum enough, why does it not display its powers in the production of good crops here, as well as in the lands in Pennsylvania, and on Connecticut River? The experiment should be made on light sandy soils, or on a dry loam. On clay or on wet soils, gypsum it is said does not succeed.

Sand and clay operate as manures for each other. Where there is an excess of sand in the soil, clay is one of the most beneficial manures, and on the other hand, where there is an excess of clay, it is remedied by the application of sand. The improvement of the soil in these cases is lasting, and not like that produced by vegetable and animal manures exhausted after a few crops. A permanent change is produced in the texture and constitution of the soil, it becomes bettter adapted for the reception of manures of a different kind, and will render them much more efficacious.

In this county, from the dryness of the atmosphere, and the nature of our soil, we suffer more from dry seasons than wet ones. But a small proportion of our lands require draining for tillage, and especially for grass. There are however some tracts of land in various parts of the county, which must be drained to be productive. These are often composed of rich earth, washed in a long course of years from the higher lands adjacent, and of vegetable matter the accumulated product of centuries, and if rendered sufficiently dry, would probably produce large crops. It is well known to every practical farmer, that the first requisite to the successful cultivation of such lands, is to lay them dry, that till this is done labour, tillage, manures, and all efforts to render such land productive, will be in a great measure fruitless. The facility of draining

here is generally much greater than in England, and it will seldom be necessary to resort to the covered drains so common in that country, and so expensive.

An essential requisite of good husbandry is, that the soil should be kept free from weeds. In this particular there are among us great deficiencies. We are the less excusable in not keeping our lands free from weeds as we have one crop which is peculiarly favorable to that object, I mean Indian corn or maize. This alone gives us a great advantage over those countries where it is not cultivated, that is over almost all Europe. Perhaps we are not fully aware of the value of this noble plant. The celebrated Arthur Young considers it as the test of a good climate for agriculture. In Great-Britain and the larger part of France, it will not come to maturity, the climate is too cold. In the south of France and in some parts of Italy it is cultivated to a considerable extent. Mr. Young says, the only good husbandry he found in France was in those districts where maize was produced. Wherever this plant was cultivated, there was an abundant supply of food for man and for domestic animals.

Our soil and climate are well adapted to the growth of maize. It produces a much larger quantity of food on the same space, than any other kind of grain; forty, fifty, sixty bushels an acre, are not an uncommon crop, and several experiments shew, that one hundred bushels may be obtained in ordinary seasons, from a single acre. The stalks and husks afford a nutritive food for cattle equal on an acre to half a ton of hay, when the corn is good.

It affords an excellent opportunity for enriching land, so that no manure may be lost by evaporation. All kinds of manure, animal, vegetable, or mineral, and in any condition if turned under the soil are beneficial, and may be applied without danger. I mentioned it in the first instance as a clean crop, that is a crop that enables the farmer to keep his land free from weeds, and prepare it for another. In England where turnips and beans are used as crops for cleaning land, the value

of the crop is much less than that of Indian corn, and the expense of cultivation much greater.

In order to obtain the full benefit from the cultivation of this crop, the land should not only be rich, but kept entirely free from weeds. The propriety of doing this is so obvious, that the remark may seem unnecessary, yet if we take a survey of the cornfields in this county, I apprehend we shall find frequent violations of this rule. In many instances, after waging a warfare during the season, the weeds have finally obtained the ascendency, their seeds have been allowed to come to maturity, and prepare the soil for a still more abundant crop of weeds the ensuing year. From the appearance of some fields in tillage, it might be imagined, that the object of the farmer was to bestow just so much cultivation as should produce a plentiful crop of weeds, who, as if they had a right as being the original occupants of the soil, are allowed to retain possession and repel any intruders. By allowing weeds to remain till their innumerable seeds ripen, we not only injure ourselves but our neighbours. The heavier seeds intrude upon their frontiers, and the winged kinds matured in our neglected grounds, fill the air like the noxious locusts of other regions, and either choke the crops of our neighbours, or make work for their hoes.

Our soil is well adapted to grass, both for pasturage and mowing land, and the climate is generally very favourable for making hay. In the vicinity of large towns, few crops are more profitable than grass, and few are obtained with so much ease. So long as lands thus situated will produce a good crop of grass, perhaps as a general rule it is not expedient to apply them to any other use. But most of our mowing lands fail in a few years, and it becomes necessary to break them up for tillage, and on almost every farm of any magnitude it is *necessary* to combine tillage and grass husbandry, in order to keep the land in good condition. The laying of land to grass is an important part of the farmer's business. The two grasses, whose seed is commonly sown, clover and herds grass, are both good, but it might be expedient to try other kinds, especially

in laying down pasture lands. If pasture as well as mowing lands were always laid to grass in a rich condition, with plenty of the kinds of seed adapted to the soil, many pastures would produce double the quantity they do at present, and be also in a better state for tillage when broken up. But no farmer should put his plough into grass land unless after a course of crops in tillage, he can lay it to grass in a condition at least as good as it was before.

In ploughing hilly land it is very important to prevent the soil from being washed away by rains. Much injury has been done to lands of this description, by the wasting effect of rains, the land gullied, the vegetable mould and richest earth washed away, and the soil either irretrievably injured, or to such a degree, that its fertility could be restored only at a great expense. The method of horizontal ploughing practised in some parts of Virginia, seems the most effectual security against this evil.

As an instance of what may be done by an active, and skilful farmer, I will mention the case of that celebrated English farmer, Robert Bakewell. Mr. Bakewell was a tenant occupying a farm of four hundred and forty acres, about one fourth arable, and the rest grass. On this farm, and from the produce of it, he kept one hundred and fifty horned cattle, four hundred sheep, and sixty horses. These animals were all well fed, in an excellent condition, and many of them the best animals of the kind in the kingdom. Mr. Young, who visited this farm, and who gives this account of it, says, the cattle were all as fat as bears. If the live stock on a farm of one hundred acres were in the same proportion, there would be thirty four neat cattle, ninety sheep, and fourteen horses. This was undoubtedly an extraordinary instance, but it proves how productive the soil may be rendered by judicious cultivation.

I am of opinion that by skilful management, it is practicable to keep a farm in a condition of constant improvement for an indefinite time, to render it from year to year, the season being equally good, more productive;—and that this may be done from the resources of the farm, without any great

expense in the purchase of materials to enrich it from abroad. Among the means necessary for this purpose, would be, I apprehend, a due proportion of grass, and tillage husbandry, making as much manure as possible, a diligent search for, and application of all kinds of manure, whether mineral, vegetable, or animal, which may be procured without any great expense, a judicious rotation of crops adapted to the soil and the probable state of the market, a thorough and complete tillage of the arable land, and the destruction of all weeds, so that the powers of the soil should be wholly applied to the production of useful crops.

One great defect common in the husbandry of this county, the want of root crops, has been pointed out in this place, in former addresses, and the great advantage of these crops for live stock described and demonstrated in the most satisfactory manner. Among these I believe the Mangel Wurzel, or great beet, and carrots, are preferable to any crops of the kind that have been tried here. They afford a much more nutritive food for cattle, and a larger produce (especially the Mangel Wurzel) to the acre, than any turnips with which we are acquainted. It seems well ascertained that the Ruta Baga, when given to cows, communicates a bad flavour to the milk, though it may be good food for other live stock. Our long and severe winters, render it necessary to lay in store so much food for cattle, and the tap-rooted plants when well cultivated, afford so much, and of such an excellent quality, that no farmer who is able to cultivate his farm in a husband-like manner, should be without a plentiful supply of these vegetables.

One principle which cannot be too strongly recommended to every farmer, is to have his live stock, and all the products of his farm the best of the kind, the best kinds of hay and grain, the best butter, cheese, fruits, cyder, potatoes, and other vegetables, for the market. The difference in point of expense in the production is very trifling between very good, and ordinary or bad, but in the price of these commodities, and the profits to be derived from them, the difference is very

great. Articles of the best quality will always command a good price, while those of an inferior quality, though produced at nearly or quite the same expense, perhaps cannot be sold at all, or sold only at a loss.

Perhaps we may derive some encouragement for spirited and vigorous efforts to improve our own agriculture, if we compare it for a moment with that of England, and take a view of some of the advantages and disadvantages of the English and American farmer. In England, agriculture is carried to a much higher degree of perfection than in other countries, with the exception perhaps, of Flanders, Lombardy, and some parts of Switzerland, and Scotland. This is not owing, as is well known, to any superiority of soil or climate, enjoyed by England over many other countries of Europe. Arthur Young, an excellent judge, after making his agricultural tours over France and England, says, that both in soil and climate, France has the superiority over England, but the produce of the latter country by the acre, was on an average, nearly or quite double to that of France, owing to superior cultivation. Our own agriculture is probably inferior to that of England ; there are no doubt exceptions to this remark, but as a general position it is unquestionably true. What are the causes of this superiority ? What are the advantages of soil, climate, or political institutions, which the English enjoys over the American farmer ? Or is the difference owing to the superior industry, skill and liberal application of capital in English agriculture ?

In England the greater mildness of the weather in winter, enables a farmer to prepare his land earlier for a spring crop, to feed his turnips on the ground, and prosecute some operations in agriculture which the severity of our winters renders impracticable. The winter is both milder and shorter, the atmosphere being more moist, is in some respects more favorable to vegetation, and they suffer less from drought than we do. Vegetation is however more rapid here, than in England, and though our spring is later, our harvest is earlier. Hay is also cut earlier here, and owing to the superior dryness of our atmosphere is much more easily made than in England. Indian

corn gives us a great advantage over the English farmer, as has been already mentioned.

With respect to the soil, a skilful observer, Chancellor Livingston, after an attentive examination, is of opinion, that the soil of the United States is not inferior to that of France, Great Britain, Italy, Flanders and Germany. The soil of our own county is not so good as that of some parts of the United States. A very considerable portion of Essex, however, is naturally fertile, and if agriculture does not flourish more with us, it cannot, I think, be justly ascribed to any defect in our soil or climate.

In the article of fruit trees, we have a great superiority over the English farmer, the most valuable fruits, as apples, pears, plums, are produced here with much greater ease, and in far greater abundance.

In the cheapness of labour the English farmer may have some advantage over those American farmers who hire a considerable portion of the labour on their farms.

Mineral manures as lime and marle are probably obtained with greater facility in England. Those parts of the United States where gypsum is used with success, have an advantage over England. This however is not the case with us.

The taxes to which farmers in England, are subjected, are far heavier than any known here, and would be thought by us intolerable, and such I trust as will never be attempted.— Tithes and poor rates in England fall wholly on real estate, and are estimated to amount to ten shillings sterling an acre, on all the cultivated land in England, that is more than two dollars an acre, so that the English farmer in addition to his rent and taxes on a farm of two hundred acres, is compelled to pay about four hundred dollars for tithes and poor rates. Taxes on the necessaries of life, on leather, soap, beer, salt, and on almost every article of consumption, foreign or domestic, increase the burdens of agriculture. In addition to these, there are regulations which promote the interest of the manufacturer at the expense of the farmer, as the prohibition to export wool, though it would often command a much higher

price on the Continent than in England, and the prohibition to import many commodities from abroad, in order to give their own manufacturers a monopoly of the market.

The activity, enterprize and skill of the English farmers have triumphed over all these difficulties, and carried the art to a higher degree of perfection than any other nation: They have been much aided by a liberal expenditure of capital, and by the discoveries and improvements in science and the useful arts.

On a fair comparison of the advantages and disadvantages of the English and American Farmer, I do not think the result will be found against us. We have as great encouragement to improve our lands, and render them more productive as the farmer in England, or any part of Europe. We have many of the same facilities for the cultivation of the soil, and some that are peculiar to ourselves. We are free from some very heavy burdens to which the English farmer is subject, and if agriculture is not improved in a high degree, the cause is not in our soil, climate, or political institutions; it must be sought elsewhere.

In some parts of the United States, the climate may be milder, the soil more fertile, and cultivated with less labour, more favourable to the production of grain, or have the advantage of some great staple, as cotton, rice, or tobacco. But if we consider the general salubrity of our climate, the numberless springs and streams which afford such an abundance of water to every part of New-England, the goodness of our roads, the advantages of our markets, the fertility of a considerable portion of our soil, the facilities for enriching it, we shall have no reason to covet the more fertile plains of the south.

If we reflect on our institutions of every kind, especially our parishes and public schools, which have existed from the first settlement of our country, and have diffused the benefits of intellectual, moral, and religious instruction through every town and village of New-England, and have contributed so essentially to form that character of industry, activity, enterprize, intelligence, and those correct moral habits, for which her in-

habitants have ever been distinguished, and which are not less necessary to individual and social happiness, than to national prosperity, we shall pause before we quit the soil of our ancestors for an imaginary paradise in the south or the west.

In order to prosecute agricultural improvements with success, theory and experience, science and practice must be united. We must avail ourselves of the discoveries in science, and the inventions and improvements in the arts. No employment has a more intimate connexion with the most important sciences, and the most useful arts, and there is none which admits of a greater variety of interesting experiments. In some countries of Europe, the study of agriculture is an essential part of a liberal education. Several distinguished Universities have a professorship to teach both the theory and practice of agriculture. In the countries where it has been most successfully cultivated, it is one of the most popular employments, and most interesting subjects of conversation, among men of the highest rank and attainments. The most distinguished chemist in England delivered a course of Lectures annually for many years, on this subject before the Agricultural Society. Indeed no art so well deserves the national patronage, as none is so essential to national security, prosperity and power. No employment is on the whole so favorable to good morals, social order, and to the promotion of those objects in which the true interest of a nation consists. It is not expected that all farmers should be philosophers, or men of science, but it is desirable that they should have some knowledge of those sciences and arts which have a close connexion with the cultivation of the soil, and have contributed so much to its improvement. Such an acquaintance with chemistry, mineralogy and botany, as would render a man able to analyze the different soils and ascertain their constituent parts, and the nature and properties of the plants commonly met with, might often be highly beneficial. Wealthy farmers might give their sons an opportunity of acquiring this knowledge without any sensible inconvenience, and thus at once promote the welfare of their families, and advance the interests of their country.

PREMIUMS

OFFERED BY THE

ESSEX AGRICULTURAL SOCIETY,

AND TO BE AWARDED IN OCTOBER,

1824.

I. MANAGEMENT OF A FARM.

For the management of a farm, in its tillage, mowing, orcharding and pasturage: the quantity of land appropriated to each—their cultivation—the means and the manner of making, increasing, preserving and applying manures—their quantities—the respective crops and products—the quantity and management of the live stock—and the quantity of labour employed—to be detailed.

For the best - - - - - *thirty dollars.*
For the second best - - *twenty-five dollars.*
For the third best - - - - *twenty dollars.*
For the fourth best - - - *fifteen dollars.*

N. B. All claims for these premiums on the management of a farm, must be entered with the Secretary of the Society, on or before the 7th of May next. The Committee appointed by the Trustees to view the Farms, will attend to this duty on the fourth week in June, and the first week in September. It will be expected, that each claimant will furnish as particular an account of the produce of his farm in 1823, as may be practicable;—and an accurate account of the produce in 1824.—Temple Cutler, Benjamin Parker, Aaron Perley, Daniel Adams, and Nathaniel Felton, jun. Esquires, have been appointed viewing committee for the year 1824.

II. DAIRY STOCK-SOILING.

For experiments in feeding milch cows on green crops, from the middle of June to the middle of October, by supplying them to the full with those crops, in their stables, without turning them to pasture. Feeding cattle in this manner is called *soiling.*

For the best, - - - - - *twenty dollars.*
For the second best, - - - - *fifteen dollars.*
For the third best, - - - - - *ten dollars.*

The whole process to be detailed.

N. B. Claims for these premiums must be entered with the Secretary on or before the day of the Annual Meeting of the Society ;—and the statements must be forwarded to him in the month of October.

III. DAIRY.

For the greatest quantity of good butter, in proportion to the number of cows producing it (not less than four) made on any farm, from the 20th of May to the 20th of November, twenty-six weeks, and the quantity of butter averaging not less than seven pounds per week for each cow, - *twenty dollars.*
For the second greatest, - - *fifteen dollars.*
For the third greatest, - - - *ten dollars.*

The kinds of food and the management of it to be detailed.

N. B. Statements of claims for these premiums must be forwarded to the Secretary, on or before the first of December, A. D. 1824.

IV. TURNING IN GREEN CROPS AS A MANURE.

For the best experiment of turning in green crops as a manure, on not less than one acre, - - *fifteen dollars.*
For the second best, - - - - *ten dollars.*
For the third best, - - - - *five dollars.*

N. B. Statements of claims for these premiums must be forwarded to the Secretary, on or before the first of December 1824.

V. CIDER.

For the best cider, the pure juice of the apple, which shall have been made in the year 1823, not less than eight barrels, - - - - - - - - - *ten dollars.*

For the second best, - - - *five dollars.*

A description of the whole process, in collecting, sorting and keeping the apples, in making the cider, conducting the fermentation and fining, if any artificial fining be used, and in preserving the cider in the cask, will be required. Claims for these premiums must be entered with the Secretary on the day of the public exhibition. At which, a sample of not less than eight gallons is to be produced, with satisfactory evidence as to the remainder.

VI. FOREST TREES.

The same premiums that were offered in 1821 and 1822; to which intended claimants are referred.

VII. POTATOES.

The premiums on this subject are stated in the pamphlet published the last year, and will be awarded in 1825.

VIII. PLOUGHS AND PLOUGHING.

The premiums on this subject, will be limited to efficient ploughs of easiest draught, drawn each by one yoke of oxen without a driver, ploughing one quarter of an acre, and turning the best furrow, at least five inches deep, and in the shortest time compatible with the ploughing of an acre, if that were required.

For the best plough, team and work - *fifteen dollars.*
For the second best - - - *twelve dollars.*
For the third best - - - - *nine dollars.*
For the fourth best - - - - *six dollars.*

IX. FOR IMPROVING OUR NATIVE BREED OF NEAT CATTLE.

The premiums on this subject are stated in the pamplet published the last year, and will be awarded in 1828.

X. LIVE STOCK.

For the best *imported* Bull, not less than two years old, on satisfactory assurance being given, that he shall be kept for use in the County at least one year from the day of exhibition, - - - - - - - - - *thirty dollars.*

For the best bull, raised in the County, not less than one year old, on satisfactory assurance as above, *twenty dollars.*

For the second best do. do. - - - *ten dollars.*

For the best bull calf not less than six months old, *eight dollars.*

For the second best do. - - - *five dollars.*

For the best milch cow, - - *twenty dollars.*

For the second best do. - - - *ten dollars.*

For the best heifer that has been in milk three months or more, - - - - - - - - - *ten dollars.*

For the second best do. - - - *seven dollars.*

For the best heifer, not less than one year old, *five dollars.*

For the best pair of working cattle not less than five years old, - - - - - - - - - *twenty dollars.*

For the second best do. - - *fifteen dollars.*

For the third best do. - - - - *ten dollars.*

For the best pair of four year old steers, *fifteen dollars.*

For the second best do. - - - *ten dollars.*

For the best boar, - - - - - *five dollars.*

For the best breeding sow, with not less than four pigs *eight dollars.*

For the second best do. - - - *five dollars.*

For the best litter of weaned pigs, not less than four in number, - - - - - - - - - *eight dollars.*

For the second best do. - - - *five dollars.*

For the best merino ram, - - - *eight dollars.*
For the second best do. - - - *five dollars.*
For the best lot of merino ewes not less than eight in number, *ten dollars.*
For the second best do. - - - *eight dollars.*

In offering the foregoing list of premiums, amounting in the whole to more than *six hundred dollars*, to be paid in 1824, the Committee have had special regard to the present state of Agriculture in the County of Essex; and have endeavoured to select such subjects, as would be most interesting and useful to our farmers generally. They have not proposed premiums for the greatest quantities of any kinds of crops; believing that the funds of the Society, for the present, can be better applied than in such premiums. And that the cultivation of entire farms is a much worthier subject of premiums, than that of small parcels or single acres of land. For it too frequently happens, in cherishing the favourite acre, the remainder suffers through neglect and want of nourishment.

The Committee repeat and desire it may be remembered that premiums claimed are not to be awarded, unless the subjects of the claims are decidedly meritorious.

For further illustration of the subjects of the foregoing premiums, the Committee would refer to the explanatory remarks annexed to them in their pamphlet published the last year.

We have proposed many and liberal premiums, with the hope of awakening the attention of the Farmers of Essex to their best interests; and of inducing them to come forward in a cause so interesting to themselves and their Country.

By order of the Board of Trustees,

TIMOTHY PICKERING,
ICHABOD TUCKER,
JOHN W. PROCTOR,
Committee.

OFFICERS

OF THE

ESSEX AGRICULTURAL SOCIETY,

ELECTED OCTOBER, 1823.

Hon. TIMOTHY PICKERING, of Salem, *President.*

Hon. JOHN HEARD, of Ipswich,
ICHABOD TUCKER, Esq. of Salem,
Dr. BENJAMIN PARKER, of Bradford,
Capt. PAUL KENT, of Newbury,
} *Vice Presidents.*

BENJAMIN R. NICHOLS, Esq. of Salem, *Treasurer.*

JOHN W. PROCTOR, Esq. of Danvers, *Cor. and Rec. Sec'y.*

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Capt. Hector Coffin, of Newburyport.
Mr. Samuel Tenney, of W. Newbury.
Hon. Benj. Osgood, of Methuen.
Mr. Enoch Tappan, of Newbury.

At the Annual Meeting of the Essex Agricultural Society, Oct. 6, 1823, at the Hotel in Topsfield,—

Voted, that the public exhibition in 1824, be at TOPSFIELD, at such time as the Trustees may appoint.

Voted, to appoint a committee, consisting of one member of the Society from each town in the County, to determine on a suitable place for the permanent public exhibitions of the Society, and to report at the next meeting.

Voted, that this committee be named by the President; and that the Secretary notify them of the time and place of their first meeting.

Attest, J. W. PROCTOR, *Sec'y.*

Essex Agricultural Society.

ACCOUNT OF

PREMIUMS AWARDED IN 1825,

AND A LIST OF

PREMIUMS OFFERED IN 1826;

ACCOMPANIED WITH

REMARKS & EXPLANATIONS

FOR THE INFORMATION

OF THE

FARMERS OF THE COUNTY.

PUBLISHED BY ORDER OF THE TRUSTEES.

FEBRUARY, 1826.

SALEM.
W. & S. B. IVES, PRINTERS.....OBSERVER OFFICE.
1826.

REPORTS

OF THE

Essex Agricultural Society in 1825.

I. ON PLOUGHING.

The Committee on Ploughing—

Report, That three teams, each of two pairs of oxen, with a driver, and one team of one pair of oxen, entered on the ground with their ploughs. The work of all of them was performed with great steadiness, without hurry, in ploughing each one quarter of an acre, in from 48 to 53 minutes.—Each plough was furnished with a thin roller, or small wheel, under the fore part of the beam, to regulate the depths of the furrows, and three of them with each a circular revolving cutter, fixed under the beam, between the coulter and the roller. The great benefit of the cutters were particularly observable in the actual state of the ground ; it being very sparingly turfed, and much softened by the heavy rain of the preceeding day. The furrow slices, nevertheless, were straight and smooth at their edges, and turned over with great regularity : whereas the other plough, unprovided with a cutter, was embarrassed with the tufts of grass rising before the coulter and clogging it ; which, besides increasing the labour of the ploughman, produced a degree of roughnes in the surface, and irregularities in the furrows.

The ploughing by Col. Jesse Putnam's team of four oxen was done with distinguished accuracy, in the straightness of the furrows, and complete subversion of the soil; and to him the Committee award the first premium, being twenty dollars.

To Mr. Perley Tapley the Committee award the third premium, being ten dollars; for the ploughing done by his team of four oxen, in a very handsome manner.

To Mr. Nathaniel Smith the Committee award the fourth premium, being five dollars, for the Ploughing done by his four oxen; for although the surface of the ground was left rough, and the furrows were disordered, from the causes above mentioned (a very partial turf, the softness of the soil, and want of a cutter to his plough) yet the depth of his ploughing, and the power and training of his oxen manifested afterward, when drawing a heavy load in a wagon,—well entitle him, in the opinion of the Committee, to the premium awarded; and to this notice of the causes which prevented a performance that would probably have authorized a claim to a higher premium.

To Mr. Perley Tapley, though without a competitor in ploughing, with one yoke of oxen, without a driver, the Committee cheerfully award the highest premium allotted to the performance with a single team,—being fifteen dollars.---This yoke of oxen was of a size perfectly adapted to the farmer's service---in that state of flesh which gave vigor and force to their movements---and so admirably trained, that no part of their force was lost by irregular motions; and hence their walk with the plough was with singular ease---almost without the appearance of exertion.

T. PICKERING, *Chairman.*

October 5, 1825.

II. ON LIVE STOCK.

Report of the Committee on Live Stock.

The Committee regret exceedingly that so few animals were exhibited, and those of ordinary quality. They are fully persuaded that if the farmers of Essex would exert themselves as they ought on these occasions, that it is in their power to make an exhibition of stock, that would well compare with those made in other counties. It is not the want of material, but the want of an active zeal in the cause, and hesitating views as to the advantages to be derived from it, that have hitherto operated against our shows of cattle in this county. The unfavorable state of the weather yesterday and this morning, probably prevented many

coming forward with their cattle, who had otherwise intended it. The Committee recommend the following premiums to be awarded.

To Moses Thurlow of West Newbury, for his bull 17 months old the 3d premium, $5

There were several other bulls exhibited but none that deserved a premium. Of that most valuable of all animals on a farm, a milch cow, none were entered in season for premium. But one was exhibited, and she not of a quality to demand a particular notice.

To Moses Wildes of Topsfield, for a heifer two years old, a premium of $5

To David Evans of Newbury, for a heifer 18 months old, a gratuity of $3

To Joseph Emerson of Topsfield, for a very superior pair of 4 years old steers, the 1st premium $15

To Asa Tapley of Danvers, for do. 2d premium $10

To Frederick J. Merriam of Topsfield, for a pair of 4 years old steers, 3d premium $5

Of this species of stock there was a very good exhibition.

To Michael Spofford of Rowley, for a fine bull calf, a gratuity of $3

To Thomas Balch of Topsfield, for his bull not entered in season, a gratuity of $2

Of swine the exhibition was not so numerous, nor equal to those in preceding years. For those exhibited the following premiums are recommended.

To Moody Andrews of Topsfield, for a boar the 1st premium $5

To Asa Tapley of Danvers, for do. 2d premium $3

To do. for breeding sow, 2d premium $3

To do for four weaned pigs about 5 months old, very handsome, 1st premium $8

To Samuel Hood of Topsfield, for his pigs 2d premium $5

For the Committee,

BENJ. T. REED, *Chairman.*

III. ON RAISING POTATOES FROM THE SEED.

The Committee of the Essex Agricultural Society, on raising potatoes from the seed, and on cider, ask leave to

REPORT—that they have awarded the premiums for raising potatoes from the seed as follows

To Mr. Daniel Putnam of Danvers, the 1st premium $10
To Col. Jesse Putnam of Danvers, 2d premium of $7
To Mr. Asa Perley of Boxford, 3d premium of $5

The process is contained in the statements of the claimants annexed. From them it will appear with how much facility this useful vegetable may be renewed from the seed. Many if not most of the potatoes brought to our market are of so bad a quality as to be scarcely eatable. Few objects are more deserving the attention of the practical farmer than their improvement, and perhaps none of equal importance can be so easily accomplished. By renewing them once in ten or fifteen years from the seed, and selecting the best kinds thus obtained, according to the practice in those countries where the best potatoes are found, we may hope to improve the quality of this article to a degree hitherto unequalled.

The Committee regret that no cider was offered for the premium the present year. No article produced on a farm more needs, or is more susceptible of improvement, or will better repay the care and industry of the farmer.

F. HOWES,
J. TOWNE, JUN. } *Committee.*
J. NEWHALL,

Topsfield, Oct. 5, 1825.

Mr. Daniel Putnam's account of his manner of raising potatoes from the seed.

In the fall of the year 1823 I gathered some balls which grew on the stalks of the potatoes called the Long Reds, separated the seeds from the pulp and preserved them until the spring of 1824. I then sowed them like garden seeds in rows about one foot apart, on a pieee of land about three feet square prepared for gardening. The produce was about three quarts, from the size of cranberries

to that of hen's eggs. In the spring of 1825 they were planted in forty hills about four feet apart, and the produce was three bushels and four quarts.

The greater part of the potatoes bore a strong resemblance to the original stock from which the seeds were taken. There were apparently eight or ten different kinds, some of them of very fine form and qualities. I have preserved the several kinds and shall plant them separately another year. Some of the potatoes were of a large size and would weigh a pound or more.

Danvers, Oct. 4, 1825. DANIEL PUTNAM.

Col. Jesse Putnam's account of his manner of raising potatoes from the seed.

The potatoes offered by the subscriber for the premium were raised from the seed gathered in the autumn of 1823 and planted in the year 1824, in two rows about ten feet long and two feet apart, and produced nearly half a peck of potatoes. In the spring of 1825 these were planted on less than two poles and three fourths of land, and produced three bushels and a half of potatoes, which are much larger than any common potatoes. I think the produce not more than one half of what it would have been in a common season for potatoes. The seeds were taken from the balls of the white potatoes. We have boiled some of them and find them of a superior quality. I think there are as many as six different kinds, though I send but four. JESSE PUTNAM.

Danvers, Oct. 4, 1825.

Asa Perley's account of raising potatoes from the seed contained in the green balls.

In the autumn of 1822 I collected four or five clusteers of green balls from the potatoe vines, and in the spring of 1823, on the 19th of April I sowed the seeds which I obtained from them ; the bed in which I sowed them was prepared in a manner similar to the one which is usually prepared for sowing carrot or beet seed. The bed was eight feet in length and two in width and produced nine different kinds of potatoes, which measured one pint. They were very small, some of the kinds were ripe early, others continued to grow until nipped by the frost.

In 1824, April 9th I planted the potatoes raised from the green balls in a bed richly manured, the bed was twelve feet in length and three in width. I planted them in rows crosswise of the bed, and one foot apart, and was careful to plant each kind by themselves ; when they were about two inches high I wed them, and was particularly careful to keep them free of weeds through the season, and I occasionally watered them.—After the vines were dead, I dug the potatoes, some were of a middling size, others were small, some kinds yielding a quantity threefold greater than others ; the whole measured one peck and a half.

April 9th, 1825, I planted one peck of the largest which I took from the several kinds, in seventy-seven hills three feet apart in one direction and two and a half in the other. The soil was loamy, the manure was spread on the ground and ploughed in. The potatoes when they had attained a suitable height were wed and every attention paid necessary to bring them to maturity.

Sept. 30, 1825, I dug and measured the potatoes ; there was one and a half bushels and three quarts. I boiled a few of each kind, some of them were remarkably good flavored, others appeared watery. I think that as many as four or five kinds are worthy the attention of the farmer, not merely on account of their productive quality but for being mealy and of good flavor, among which are the small white ones ripe in June, the largest kind ripe in August, and those which are in a growing state when pulled, and the kind which resembles the blue noses ripe in July.

ASA PERLEY.

IV. ON MANUFACTURES.

The Committee appointed to examine and report on the applications for premiums offered for Domestic and Household Manufactures, submit the following, to wit :

To Miss Hannah Abbot of Andover, for a piece of yard wide Carpeting, twenty-seven yards, the second premium of five dollars $5

To Mrs. Elizabeth M. Harding of Haverhill, for a piece of yard wide Carpeting, twenty-one and an half yards, a premium of five dollars $5

To Mrs. Elizabeth M. Harding of Haverhill, for a Cotton Counterpane, the second premium of two dollars $2

To Mrs. Charlotte Page of Newburyport, for a Cotton Counterpane, the first premium of four dollars $4

To Miss Elizabeth Barber of Newburyport, for a cotton counterpane, the second premium of two dollars $2

To John P. Webber of Beverly, for his specimen of ground mustard from the common American black mustard seed, a gratuity of two dollars $2

To Caleb Webster of Salem, for his specimen of hats, manufactured from merino wool, a gratuity of three dollars $3

To Miss Joanna Adams of Newbury, for a knit woolen shawl, a gratuity of two dollars $2

To Mrs. Mary Little of Danvers, for an imitation of valencia mantle, a gratuity of two dollars $2

To Miss Lucy E. Pulsifer of Newburyport, for a hearth rug, wrought at Mrs. Page's school, a gratuity of three dollars $3

To Miss Sarah Ann Barber of Newburyport, for a hearth-rug, wrought at Mrs. Page's school, a gratuity of one dollar fifty cents $1,50

To Miss Martha W. Nichols of Newburyport, for a hearth-rug, wrought at Mrs. Page's school, a gratuity of one dollar fifty cents $1,50

To Miss Abigail Gragg of Boxford, for twenty yards of linen diaper, the second premium, two dollars $2

To Miss Charlotte Andrews of Ipswich, for a lace veil, a gratuity, two dollars $2

To Miss Mary Dennis of Ipswich, for a lace veil and cap, a gratuity, two dollars $2

To Mary Anthony of Salem, for a patch-work counterpane, containing 9592 pieces, completed before she was nine years old, a gratuity of two dollars $2

The committee regret that so many subjects of improvement in agriculture, as well as in household manufactures, for which premiums are offered, have been overlooked, or have not excited sufficient interest in the community to produce competition.

ICHABOD TUCKER, Per Order.

Topsfield, Oct. 5, 1825.

V. COL. PUTNAM's STATEMENT OF BUTTER, &c.

To the Trustees of the Essex Agricultural Society.

GENTLEMEN,—The subscriber would submit to your consideration the following statement of facts in support of his claim for the premium offered by you on the Management of a Dairy, in the year 1825.

The premium is thus stated :

" For the greatest quantity of good butter, in proportion to the number of cows producing it (not less than four) made on any farm from the 1st of June to the 1st of November ; and the quantity of butter averaging not less than seven pounds per week for each cow,—twenty dollars," &c.

My farm is situated in the North Parish in Danvers, and consists of about one hundred acres. My whole stock of cows is eight, all of the common native breed ; from these I selected five for the purpose of ascertaining the quantity of butter that could be made in the time above-mentioned. They were kept and fed through the season separate from the other stock ; and their milk was entirely used for the making of butter. During the last winter my cows were fed on barley straw, salt hay, corn fodder, fresh meadow hay, with some of the common flat turnips. They were thus fed on coarse and cheap fodder until about the 10th of March, after which they were fed with English hay, and received about one pint of Indian corn, on the ears, a day, to each cow, until about the middle of May.—From this time they fed in the pasture ;—and through the whole season, in addition to the feed there obtained, received between four and five quarts of Indian meal per day for each cow. In September when the feed of the pastures was nearly dried up, they were fed with the suckers of about two and a half acres of Indian corn ; after this, for a number of weeks they received about one bushel of mangel wurtzel to a cow, a day,—one half in the morning and the other at night. These are all the kinds of food they have received, and the quantities are stated as near as they could be ascertained,—my directions having been to supply them with these quantities, neither more nor less.

It will be recollected that the season in this vicinity has been unusually dry and warm. In consequence, common pasture land has yielded much less feed than usual. This was peculiarly the

case with my pastures, which are a light, gravelly soil, of ordinary quality And for the same reason my fall feed, or the feed from my mowing lands after the first crop was taken off, was much less than usual.

The extreme warmth of the weather was very unfavourable for the making of butter, some part of the time, as will be seen from a comparison of the products in different weeks. And my cellar was not as well constructed as I could have wished, and as I intend to have it for keeping the milk and cream cool.

As to the quality of the butter, I can only say, that my customers, who are among the most particular in the choice of this article of any in Salem, always expressed themselves entirely satisfied with it, and cheerfully gave the highest market price through the season.

The following is the quantity of butter furnished for the market from these five cows in the several weeks as numbered, commencing June 1st, and ending October 31st.

1st	week	50¼	12th	week		35½
2	"	48	13	"		38½
3	"	47	14	"		38½
4	"	43¼	15	"		41
5	"	38¾	16	"		40¾
6	"	31¾	17	"		45½
7	"	35¼	18	"		45
8	"	35	19	"	(six days)	38
9	"	36	20	"		38½
10	"	37½	21	"		37½
11	"	37½	22	"		41

The whole amount in the above time is 881¼ pounds, being more than 8 pounds per week for each cow.

I have also kept an account of the produce of these cows in the month of November, and find the same to have been 157½ pounds; making a total in six months from five cows, of 1038½ pounds, or 208 pounds to a cow nearly.

All of which is respectfully submitted by

Danvers, Dec. 1, 1825. JESSE PUTNAM.

Then Jesse Putnam made oath that the foregoing statement by him subscribed, is correct and true, before me

J. W. PROCTOR,
Justice of the Peace.

The Committee appointed by the Trustees of the Essex Agricultural Society, to examine the claims for premiums on the Dairy, have examined the foregoing statement made by Col. Jesse Putnam, of Danvers, being the only one submitted to their consideration, and are of opinion that he is entitled to the first premium on this subject, being twenty dollars, and recommend that the same be awarded accordingly.

THOMAS STEPHENS,
JAMES GARDNER,
ABIJAH CHEEVER, } *Committee.*

At a meeting of the Board of Trustees of the Essex Agricultural Society, February 6, 1826, the foregoing Report of the Committee was unanimously approved.

Attest, J. W. PROCTOR,
Sec'y Essex Agri. Society.

PRESENT STATE OF THE FUNDS OF THE ESSEX AGRICULTURAL SOCIETY.

Cash deposited in Salem Savings Bank -	$271 30
Income since October 22d, 1823, - - -	28 70
A Promissory Note of Hand with sufficient sureties for	500 00
Interest due on the same since Oct. 26, 1824, -	40 00
Six Shares in Merchants Bank, valued at -	750 00
Twelve shares in Exchange Bank do. - -	1320 00
Eleven Shares in Commercial Bank do. -	1210 00
Three Shares in Salem Bank do. - - -	330 00
Amount - -	$4450 00

$2627 00 of this money was procured by subscription of members, in a manner that entitles the Society to a dividend of 20 per cent a year upon this amount, from the State;—the remainder is the accumulated income of this fund.

Attest, B. MERRILL, *Treasurer.*

Salem, February 28, 1826.

TRANSACTIONS OF THE BOARD OF TRUSTEES.

At a meeting of the Board of Trustees of the Essex Agricultural Society, February 6th, A. D. 1826—Present seventeen members:—

Voted, unanimously, That the next Annual Meeting and Public Exhibition of the Society, be at the South Parish in Danvers, on Thursday the 12th day of October next.

Voted, That the President and Secretary be a Committee to prepare and publish a list of premiums to be offered the present year.

Voted, That Nathan Felton, Jesse Putnam and John W. Proctor, be a Committee of Arrangements for the next Exhibition.

Voted, That Messrs. Pickering, Tucker, Howes, Proctor and Putnam, be a committee to procure a suitable plate to be engraved, for a certificate of Premiums.

Voted, That the Secretary be authorized to subscribe for ten copies of the current volume of the *New-England Farmer*, to be distributed as premiums at the next Exhibition.

Voted, That the expenses incurred by certain individuals in Topsfield, in building permanent Cattle Pens for the use of the Society, to the amount of $108 85 cents, be refunded by the Treasurer of the Society.

Attest, JOHN W. PROCTOR, *Sec'y.*

PREMIUMS OFFERED IN 1826.

The Trustees of the Essex Agricultural Society present to the consideration of the *Farmers of Essex*, the following list of Premiums, for which they will be happy to find many competitors. It is to be understood, where no particular time of payment is specified, that they will be paid the present year, if a sufficient number of meritorious claims shall be presented.

I. MANAGEMENT OF A FARM.

For the management of a farm, in its tillage, mowing, orcharding and pasturage:

For the best	*thirty-five dollars.*
For the second best	*thirty dollars.*
For the third best	*twenty-five dollars.*
For the fourth best	*twenty dollars.*
For the fifth best	*fifteen dollars.*
For the sixth best	*ten dollars.*

The quantity of land occupied in each of the above branches of husbandry, and its mode of culture—the means and the manner of making, increasing, preserving and applying manures, and their quantities—the respective crops and products—the numbers, kinds, and management of live stock—and the quantity of labour employed—to be detailed.

☞ The above premiums are to be awarded and paid the present year, to those claimants whose superior management shall entitle them to such distinction. The claims already entered are few. In the hope that the number may be increased, the Trustees have extended the time of entering claims until the first day of June next. In the course of that month, the viewing committee will visit the farms of the claimants; and again in September. The Committee are Timothy Pickering and Frederick Howes of Salem, Paul Kent of Newbury, Asa T. Newhall of Lynnfield, Jacob Osgood of Andover, Aaron Perley of Boxford, James H. Duncan of Haverhill, and John W. Proctor of Danvers.

There will doubtless be some farms in the county whose owners may not be claimants of the premiums, but whose superior management, in some branches of husbandry, or even of their entire farms, may well deserve attention and imitation. Upon notice that their visits will be acceptable, the committee will view such farms, to obtain information that may be usefully communicated to their brethren through the County. Such notice may be given to John W. Proctor, the Secretary of the Society, or to any one of the viewing committee, who will communicate the same to the Secretary.

The same premiums are now offered to be awarded in the year 1827—of which this notice is given, that farmers, who shall be inclined to become competitors for them, may make their arrangments in due time, and give notice of the same to the Secretary, on or before the 1st day of June in 1827.

It will be expected of each of the claimants, that they forward to the Secretary, a written statement of all the particulars required on this subject, as early as the 1st day of December in the year for which they claim a premium. These statements, or the substance of them, will probably be published by the Society.

II. DAIRY STOCK. SOILING.

For experiments in feeding milch cows, not fewer than four, on green crops, comprehending all juicy vegetables, from the first of June to the first of November, by supplying them to the full with those crops in their stables, without turning them to pasture;—feeding cattle in this manner is called soiling. The kinds of green crops used, the expense of raising them, and the comparative value of different crops as food for cattle, together with the whole process pursued, to be detailed:—

For the best - - - - *twenty dollars.*
For the second best - - - *fifteen dollars.*
For the third best - - - *ten dollars.*

N. B. Notice of intended claims for these premiums must be entered with the Secretary, on or before the day of the annual meeting; and a written statement of facts forwarded by the 20th of November.

III. DAIRY. 1. BUTTER.

For the greatest quantity of good butter, in proportion to the number of cows producing it, (not less than four) made on any farm from the first of June to the first of November; and the quantity of butter, averaging not less than six pounds per week for each cow, - - - - *twenty dollars.*

For the second greatest - - - *fifteen dollars.*

For the third - - - - *ten dollars.*

☞ Claims for these premiums on butter must be entered with the Secretary on the day of the next annual meeting of the Society. A detailed statement of the management of the dairy—the breed of cows—their kinds of food, and how long each kind is used during the five months;—the number of pounds of milk given by the cows on the first day of each month, &c.—must be forwarded to the Secretary on or before the 20th of November next;—and a sample of the butter, not less than ten pounds, must be produced to the committee by each claimant, on the day of the annual exhibition.

2. CHEESE.

For the best produce of new milk cheese, in proportion to the number of cows producing it (not less than four) made on any farm from the first of June to the first of November, a sample of which, not less than one hundred pounds, to be produced at the public exhibition - - - *twenty dollars.*

For the second best - - - *ten dollars.*

☞ A similar statement with regard to the management of the Dairy, &c. will be required in this case, as is mentioned above for butter.

IV. TURNING IN GREEN CROPS AS A MANURE.

For the best experiment of turning in green crops as a manure, on not less than one acre, the experiment to be made in 1826,

and a detailed account of it to be given in 1827, and forwarded to the Secretary on or before the 20th of November

fifteen dollars.

For the second best - - - *ten dollars.*

N. B. Similar premiums were offered the last year, to be awarded the present year;—but no claims have as yet been entered.

V. FOREST TREES.

For the best plantation of white oak trees, not less than one acre, nor fewer than one thousand trees per acre, to be raised from the acorn, which trees shall be in the most thriving condition in September, 1828, - - - *thirty dollars.*

For the second best - - *twenty dollars.*

For the third - - - - *ten dollars.*

For the best plantation of Locust trees, or of Larch trees, or of White Ash trees, or of Chesnut trees, each of not less than one acre, nor fewer than one thousand trees per acre, to be raised from the seeds, which trees shall be in the most flourishing condition in September, 1828, - - *twenty dollars.*

For the second best - - - *fifteen dollars.*

For the third - - - - *ten dollars.*

N. B. Claims for these premiums must be entered with the Secretary of the Society on or before the first day of June in 1828, that the Committee on Farms may have an opportunity of viewing the plantations for which premiums are claimed.—If these premiums should not be awarded in 1828, the Trustees will renewedly offer the same for the years 1829 and 1830. As it was a special object with the Legislature, in extending their patronage to Agricultural Societies, to encourage the raising of Forest trees, it is hoped our enterprising farmers will avail themselves of this favorable opportunity of trying the experiment.

VI. IRRIGATION.

For the most satisfactory experiment for increasing the crops, upon not less than one acre of land, by irrigation, (that is turning water from its natural current so as from time to time to overflow the land) with a detailed account of the manner, expense, and benefits produced - - - *twenty dollars.*

N. B. Claims for this premium must be entered with the Secretary, so that the Committee for viewing Farms may have an opportunity of examining the crops while growing. If not awarded the present year, it will be continued for the next, and so on until 1830, in the hope of producing some valuable experiments on this subject.

VII. PLOUGHS AND PLOUGHING, AND WORKING OXEN.

For the best performance in ploughing with teams of two yoke of oxen - - - - - *twenty dollars.*
For the second best - - - *fifteen dollars.*
For the third - - - *ten dollars.*
For the best performance in ploughing with teams of one yoke of oxen without a driver - - *fifteen dollars.*
For the second best - - - *ten dollars.*
For the third - - - *five dollars.*

☞ In awarding these premiums, the best work, with least expense of labour, will be the test of merit. The construction of the plough used,—the discipline of the cattle employed,—and the skill of the ploughman and driver,—will all be taken into view. The double team will be expected to plough not less than *seven* inches in depth;—the single team, not less than *five* inches. The Trustees are very desirous of having the most improved and best constructed ploughs brought into general use; and they therefore, will be particularly attentive to the kind of plough used, and the manner in which the work is performed, in awarding the premiums. As these are the only premiums to be offered for working

cattle, the committee on ploughing, will test the discipline and training of the cattle, by the draft of loaded wagons, or in any other manner they may think proper. And the premiums are to be awarded to those, which, taking all things into consideration, are most deserving.

That suitable preparations may be made for the competitors, it is necessary that it should be known before the day of exhibition, what number are expected. It is therefore to be understood, that no person will be entitled to receive a premium, unless he shall have given notice to the Secretary, by letter or otherwise, on or before the Monday next preceeding the day of Exhibition, of his intention to engage in the Ploughing Match.

The expense of keeping, such teams as may come more than ten miles for this purpose, on the night previous to the trial, whether successful or not in the competition, will be paid by the Society, on calling on the Secretary for the same.

VIII. COMPARATIVE VALUE OF CROPS AS FOOD FOR CATTLE.

For the most satisfactory experiment upon a stock of Cattle, not less than four in number, in ascertaining the relative value of the different kinds of fodder used for the cattle, as compared with English hay, with a detailed account of the fodder used and the expense of raising the same; the experiment to be made in the three winter months of 1825 and 1826, - *twenty dollars.*

For the second best - - *fifteen dollars.*

For the third - - - - *ten dollars.*

☞ These premiums were offered the last year, to be awarded the present year.

IX. CIDER.

For the best cider, the pure juice of the apple, which shall have been made in 1826, not less than four barrels; a sample of eight

gallons of which to be presented to the Society at the public exhibition in 1827, when the premiums will be awarded, *ten dollars.*

For the second best - - - *five dollars.*

A description of the whole process of making and preserving the same, in the casks, will be required.

☞ It seems expedient to repeat, with some additions, the intimations for making good cider, which were published by the Trustees in their pamphlet in 1821; and which are recommended to the consideration of farmers.

1. Let the apples hang on the trees until fully ripe. Such as are then *mellow* should be at once committed so the mill and press. Such as are *hard* should be laid in heaps not more than a foot in depth, and if practicable under cover, but where the air will circulate, until they become *mellow*—if the season admit the keeping of them so long: for as apples do not attain their highest flavour until mellow, so, if ground earlier, they will not, probably produce the highest flavoured cider.

2. Separate the rotten and partly rotten, from the sound apples; for the latter only can yield fine cider.

3. Not a drop of water should be introduced, not even to wet the straw used in making up the cheese. For the whole strength of the pure juice of the apple will be required to preserve it in casks, through our hot summers, in the coolest cellars. The straw should be clean and sweet.

4. If amid the great variety of apples, in most orchards, there be no one sort sufficient for a cheese, let those sorts be put together which appear alike mellow.

5. In the proposed experiment it will be desirable to use new white oak barrels. These should be scalded with boiling water; and when emptied, turned bung-hole down, to become thoroughly drained and dry.—If old casks are used, they also should be scalded with boiling water, with the addition of a small quantity of unslacked lime: in both cases, in the latter especially, the casks to be well shaken. ☞ But be careful not to be in the way of the bung, which may be violently forced out by the steam, during the agitation.

6. The cider-mill and press should be made perfectly clean; and for this end, after being swept and brushed, be washed with

boiling water. In a word, to produce the finest flavoured cider, the farmer must be neat in his operations, as his wife is in her dairy.

But although all the preceeding rules should be carefully observed, in gathering, mellowing, sorting and grinding the apples, and in pressing out the cider,—success is not to be expected, unless particular attention be given to the *first fermentation*.—If the cider-maker were to put thirty gallons of cider directly from the press, into a tub, he would see a scum of pomace rising to the surface, in a few days (more or fewer, according as the weather is cool or warm) and forming a close crust. This crust will soon after crack, and show a white froth at the cracks. Immediately the cider must be separted from this crust, either by skimming off the latter, very carefully, to avoid precipitating any of it down through the cider,—or, (what is better, by drawing off the cider without touching the scum) by a tap previously fixed near the bottom of the tub; taking good care, also, that no part of the lees run off: for while the lighter parts of the pomace rise to the surface, the heaver sink to the bottom.—If the cider be fermented in casks, these should want a gallon or two of being full. No harm will be done by exposing so much of its surface to the air; for, as in the open tub, it will soon be covered with a scum or crust; which being inspected at the bung-hole, the precise time for racking may in like manner be seen. Should a fresh fermentation occur, a second drawing off will be requisite. In December, or whenever the cider shall appear perfectly quiet, the bung may be introduced. In the fore part of March, the cider should be again drawn off, and with special care that no part of the lees mix with it. Then it is to be closely bunged up, in full casks.

After apples are ground, the pomace should remain exposed to the air, in open tubs or vats, about twenty-four hours, before it is made into the cheese to be pressed. This is known to give not only a better colour, but to add to the richness of the cider. This was strikeingly shown by that practical farmer and eminent naturalist, Thomas A. Knight Esq. now President of the London Horticultural Society. He says—"I have often extracted, by means of a small hand-press, the juice of a single apple, without having previously bruised it to pieces; and I have always found the juice, thus obtained, to be pale, and thin, and extremely defective in richness, though the apple possessed great merit as a

cider-fruit. I have then returned the expressed juice to the pulp, which I have repressed after it has been exposed, during a few hours, to the air and light; and the juice has then become deeply tinged, less fluid, and very rich."—[*Knight's Treatise on the Apple and Pear, Cider and Perry.*]

If the cider made according to the preceeding intimations, prove of a very superior quality, it will sell at a price so high as abundantly to compensate the farmer for all the extra care and labour bestowed upon it.

The cider-premiums offered last year will be awarded, if merited, at the next public exhibition in October.*

* The importance of a strict attention to the first fermentation of cider was strongly impressed on my mind by the following fact.—When I was a young man, my father received two cartloads—each load containing eight barrels—of cider, directly from the press. According to his usual practice, these were discharged into hogsheads and tierces, in his cellar; excepting about half a barrel of each load. These two parcels I threw into a tub, placed on the cellar floor. I inspected it daily. A thick scum, forming a brownish crust, very soon covered the cider. About the 5th day (I believe late in October) the crust began to open in cracks, showing at every opening a white froth. No provision having been previously made for drawing it off, I could separate this crust only by skimming it off. This I did with great care, to prevent the sinking of any part of it. With like care, I then laded the cider into a new white oak barrel—leaving the lees in the tub.—At this time, the cider in the hogsheads and tierces made a hissing noise, at the bung-holes. The next day, I looked at my barrel—the bung, (as was the case with every hogshead and tierce) being out. I found it as still as water; while the hissing, at all the other casks, was loud as on the preceeding day. These, of course, remained with their bungs out, to give vent to the violent fermentation, lest the casks should burst. My barrel continuing perfectly quiet, I introdueed its bung, but not tightly. Some time in February or March following, I drew it off; and was gratified with finding the cider of a fine vinous colour, mellow, well-flavoured, and fit for bottling.—The cider in the other casks, which fermented without any check, was pale, hard and harsh: in a word, like the rough, unpleasant cider generally to be met with in farmer's houses, where the fermentation is disregarded—in England, according to English writers, as well as in New-England. T. PICKERING.

X. POTATOES.

For the best and most valuable potatoes, taking them for *all in all*, raised from the seed of the apples or green balls—samples to be produced at the Society's public exhibition in 1826,

ten dollars.

For the second best - - - *seven dollars.*

For the third - - - - *five dollars.*

The Trustees presume that some farmers have already begun their experiments; and, consequently, will have samples of new potatoes to offer in the present year. The same premiums will be continued to be awarded, in 1827 and 1828, to meritorious claimants.

REMARKS ON POTATOES.

In Great-Britain and Ireland, their best sorts, of potatoes, after a few years, are found to degenerate; and hence they have recourse to seeds in the apples or green balls, to obtain new kinds. Seeds from the same ball have produced a great variety—some early, some late—some yielding a small, some a large product—some watery, some mealy and well flavoured—some very moderately prolific, may be of so superior qualities as to be well worth cultivating. The judicious planter will select, to be offered for premiums, such sorts as upon the whole he shall think worthy to be cultivated.

In 1823, the Trustees offered premiums to encourage farmers in Essex to plant the seeds found in the green balls, in the hope that some new sorts of potatoes might be obtained, superior to those generally cultivated: and at the last public exhibition (in October, 1825) they were gratified with the sight and taste of several new sorts, meriting the premiums. But believing greater improvements to be very practicable, they have renewed the premiums. And to prevent errors and mistakes in prosecuting experiments, every intended claimant is desired to take notice—

1. That seeing the seeds in the same ball will produce various sorts of potatoes, it will be indispensably necessary that each

young plant grows at the dstance of eight or ten inches from any other.

2. That in autumn, or as soon as the vines, or stems of the plants die, and the young potatoes are dug up, those of each plant are to be saved by themselves; and it will be easy to put each sort in a separate paper bag. These potatoes will be very small, perhaps from the size of a pigeon's down to that of a sparrow's egg.

3. In the ensuing spring, the potatoes of each sort, that is, the potatoes in each bag, must be planted by themselves; and if not in distinct rows, then stakes, driven into the ground, should mark the divisions of the several sorts in the same row, leaving a space of about two feet between one sort and another, to guard against any mixture.

4. In the time for harvesting them in the second year, the potatoes, if grown in a good soil, will be large enough to be boiled, to ascertain their qualities. Each sort must be tried by itself. Such as are watery, or ill-flavoured, may be at once thrown aside, for the use of live-stock. Every other sort, so valuable as to be thought worth cultivating, must be kept unmixed, by putting each kind into a separate bag, box or cask. And such of these as the Experimenter thinks may fairly entitle him to a premium, he will bring a sample of—not less than half a peck of each sort—to the place of public exhibition.

☞ Some farmers may think the exactness above proposed and required to be unnecessary. But let such recollect, that these experiments are proposed, not to gratify curiosity, but to obtain several sorts of potatoes of superior excellence, to be imparted from farmer to farmer, throughout the county; of whom some may prefer one improved sort, some another, for their own tables, and to supply their customers in the market towns, who may have like preferences. Such exactness in keeping the products from each original plant is the more necessary, because they may possess very different qualities from the products of other plants, which may have the same appearance in size, shape and colour.

ADDITIONAL REMARKS ON POTATOES.

Formerly it was supposed, and the opinion remains with many, that to insure a crop of *good* potatoes, it was only necessary to plant *good kinds;* such, for instance, as were brought from England, Ireland, Nova-Scotia, or, sometimes, the most eastern part of Maine: but disappointment has been the *general* result. Near sixty years ago, I received a small parcel just brought from Passamaquoddy. At that time I had never tasted any so good, and since then, never any better. They were small, yet so mealy that it was difficult to boil them without their falling to pieces. In the ensuing Spring, I planted them on what would be called a dry, sweet spot of ground, in an old tillage field. The manuring was moderate. They were properly cultivated during the season. When ripe, in autumn, the produce was of potatoes generally much larger than those I had planted, the bigger ones hollow in the middle, and all watery and not well flavoured.

Within the last five-and-twenty years, I have planted various kinds of potatoes, from England and Ireland; but without obtaining any valuable products.

Now-and-then, a good potatoe from Nova-Scotia, has yielded potatoes resembling, though not equal to the originals. Such was a small blue potatoe from that country, whose product continued of a good quality, *if planted on newly broken up grass-land;* but the sort was only moderately productive.

It has seemed to me, that while potatoes from the more northern climes degenerated, those from more southern regions gradually improved, in quality. This, I believe, has been generally perceived in the case of the long red potatoe, now almost universally cultivated, and the most productive of any sort at present known amongst us. It is sometimes called the River Plate potato. But while it has been improving in quality, it has, as far as my observation extends, become less productive. The best early potatoes I ever planted sprung from a handful of small ones I brought from Maryland, many years ago. They became mealy and well flavoured.

It was formerly the prevailing opinion, that dry, warm lands, such as sandy loams, were the best for producing good potatoes.

I have long been satisfied that they were the worst; at least when no farther north than Massachusetts.—Lancashire, a western county in England, and Ireland, are distinguished for producing fine potatoes. Ireland is remarkable for the moisture of its climate; and the western coast of England is more moist than the eastern. Both are many degrees farther north than Massachusetts; and are exempt from the droughts and burning heats of our summers. These circumstances suggest the propriety of our planting potatoes on moist and cool grounds; thus in some measure assimilated to the soils of Ireland and Lancashire; and I may add, of Nova-Scotia and New-Brunswick.—Two or three years ago, early in May, dining with the late Governor Brooks, at Medford, I mentioned the superior goodness of his potatoes; and asked him on what sort of ground they were raised. He answered—*It is now under water.*—The late Dr. James Anderson of Great-Britain, has written largely on Agricultural subjects. In the early part of his life, he was a practical farmer in Scotland. In some of his works, read long since, I recollect his saying, that in one season uncommonly dry, in Scotland or England, or in both, the crops of potatoes were unusually small, and poor in quality. In the next season—a moist one—the crops were abundant, and of excellent quality.

From the preceeding remarks, it seems just to infer,—That in Massachusetts (and further south it must be more important) we may expect to raise our best potatoes on moist and cool grounds; and better on newly broken up grass land than on such as had been long in tillage, as the latter may not be sufficiently productive without a greater portion of manure.—And further, that as no reliance can be placed on fine potatoes raised in more northern and cooler and moisture climates than our own, for producing potatoes equally good in our own,—it is highly expedient to try the experiment, proposed by the Trustees, of raising new sorts, from the seeds of the potato apple; some of which, thus originating in our own climate, may prove superior to any imported ones; especially if the most proper soils be selected for their cultivation.

XI. FOR IMPROVING OUR NATIVE BREED OF CATTLE.

☞The following premiums were offered in 1823, to be awarded in 1828. Similar premiums were offered in 1825, to be awarded in 1829 and in 1830.——They are thus stated.

To the person who shall produce at the public exhibition of the Society, in either of the years 1828, or 1829, or 1830, any number of milch cows, not less than four, of our native breeds, showing manifest improvement therein, by an important increase in the *quantity*, and maintaining, at least, if not improving, the *good quality* of milk; the latter to be tested by the quantities of butter made in the five months next preceeding the exhibition—

For the best - - - - *thirty dollars.*
For the next best - - - *twenty-five dollars.*
For the third - - - - *twenty dollars.*

To the person who shall produce as aforesaid, the best pair of working oxen, or well grown and well trained steers, raised in the County, and improved on the principles hereinafter mentioned, - - - - - *twenty dollars.*
For the second best - - - *fifteen dollars.*
For the third - - - - *ten dollars.*

To the person who shall produce as aforesaid, the best bull of our native breed, raised in the County, and improved on the same principles, - - - - *twenty dollars.*
For the second best - - - *fifteen dollars.*
For the third - - - *ten dollars.*

NATIVE BREED OF CATTLE.

REMARKS.

It should be constantly borne in mind, that the Society has been formed for the purpose of effecting *improvements*, in every branch of husbandry. Chance in breeding, or a lucky purchase, may give a farmer a superior cow; *but unless her offspring be raised*, we shall make no advance; and fifty years hence, the quality

of our neat cattle will not be improved. It is true, that fine cows and fine bulls do not *always* produce an offspring equal to themselves; but the high probability is in their favour. Hence the high prices given for the improved imported breeds; *like generally producing like.*

Many are willing to raise a cow-calf from a superior cow; while they are regardless of a bull calf: But to an *improving farmer*, the latter is more valuable than the former. The offspring of the female is very limited; whereas the male may be the sire of hundreds.—The heifers from fine cows so often prove worthless, because the cows are put to worthless bulls.—How different is the conduct of breeders of horses? No one expects a fine colt, unless from a good mare, and more especially from a stallion of distinguished excellence. The same rule and practice must be adopted in the raising of neat cattle, if we expect fine cows and bulls.

☞For these reasons, the Trustees expect, that farmers, for their own interest, as well as from their desire to contribute to the improvement of the stock of the county, will raise both the male and female calves from cows which they offer for premiums, as animals of superior excellence.

XII. IMPROVEMENT OF WET MEADOW LANDS.

For the best experiment in improving, by draining, gravelling, or otherwise, not less than one acre of wet meadow or swamp land, the experiment to have been fully tested by 1828, when the premium is to be awarded, - - *twenty dollars.*

For the second best - - - *ten dollars.*

XIII. ANIMALS TO BE PRODUCED AT THE NEXT PUBLIC EXHIBITION,

Which is to be near the South Meeting-House in Danvers, on Thursday the 12th day of October, 1826.

For the best bull, of our native breed, not less than one year old, raised in the County, on satisfactory assurance being given

that he shall be kept for use in the County, at least two years from the day of exhibition, - - *fifteen dollars.*

For the second best do. do. do. - - *ten dollars.*

For the best bull of any other breed, not less than one year old, on satisfactory assurance being given as aforesaid, *fifteen dollars.*

For the second best do. do. do. - - *ten dollars.*

☞ Note. As these premiums for bulls are liberal, and as the object in offering them is to promote improvement in our breed of stock; the Trustees have thought it proper to direct, that the persons who may receive the premiums shall sign an obligation, to be left with the Secretary, that they will observe the conditions on which the premium is offered, or forfeit the same for the benefit of the Society.

For the best milch cow, not less than three nor more than ten years old, with satisfactury evidence, as to the quantity and quality of her milk, and the manner in which she has been fed, *fifteen dollars.*

For the second best do. do. do. - - *ten dollars.*

For the third best do. do. do. - - *five dollars.*

For the best heifer, that has been in milk, three months or more, with satisfactory evidence of the quantity and good quality of her milk, - - - - *ten dollars.*

For the second best do. do. do. - - *five dollars.*

For the best pair of four year old steers - *fifteen dollars.*

For the second best do. - - *ten dollars.*

☞ Note. In determining the premiums on steers, regard will be had not only to their size and appearance, but to the manner in which they have been trained, and their power in the yoke; and the committee will test these qualities in such way as they may think proper.

☞ To encourage the farmers of Essex to raise the offspring of their best stock, the Trustees have thought fit to offer to the owners of the cows that may obtain the premiums, further simi-

lar premiums for their offspring respectively. That is, such offspring, whether bull or heifer, shall be entitled to the same premium that was awarded to its dam; the offspring to be exhibited at the Cattle Show next after it shall have attained to the age of one or two years, accompanied with satisfactory evidence of its identity; and on this further condition, that if such offspring show such marks of superior qualities, as in the opinion of the Trustees to be capable of materially improving the neat cattle of the county, if retained as breeders,—the same shall he retained accordingly, within the county.——Note. The latter requisite will not prevent the sale of such improved offspring, provided it be to some farmer or farmers of the county.

For the best litter of weaned pigs, not less than four in number, from two to eight months old, - - *ten dollars.*
For the second best do. do. do. - *seven dollars.*
For the third best do. do. do. - - *five dollars.*

☞ Note. The Trustees have varied their form of offering premiums on swine the present year, believing that the improvement of the breeds of this animal will be as well or better promotted by giving premiums on pigs only, as in the manner formerly practised.

☞ No animal will be entitled to receive more than one premium. Animals that have received one premium from the Society, will not be entitled to another, unless it be of a higher order.

Should any animals of fine quality, be presented at the public show, for exhibition, they will receive such notice from the Trustees, as by their merits they are entitled to. And should they be of extraordinary quality, such gratuities will be tendered, as may reward their owners for exhibiting them.

☞ The Regulations to be observed at this Exhibition, will be published in due season, by the Committee of Arrangements.

XIV. MANUFACTURED ARTICLES, TO BE PRODUCED AT THE NEXT PUBLIC EXHIBITION.

To encourage Household Manufactures, the Trustees offer the following premiums.

For the best yard wide carpeting, not less than twenty yards to be exhibited - - - - *ten dollars.*

For the second best do. do. - - - *five dollars.*

For the best stair carpeting, not less than twenty yards to be exhibited - - - - - *five dollars.*

For the second best do. do. - - *three dollars.*

For the best specimen of straw or grass bonnets *five dollars.*

For the second best do. - - - *three dollars.*

For the best piece of flannel, not less than twenty yards to be exhibited - - - - *five dollars.*

For the second best do. do. - - *three dollars.*

For the best knit woolen hose, not less than six pairs in number - - - - - *three dollars.*

For the second best do. do. - - *two dollars.*

For the best men's half hose, (woollen,) not less than six pair in number - - - - *two dollars.*

For the best piece of linen diaper, not less than twenty yards to be exhibited, - - - - *three dollars.*

For the second best do. do. - - - *two dollars.*

For the best piece of linen cloth, (for shirting or sheeting) not less than 7-8ths of a yard in width, and not less than twenty yards to be exhibited, - - - - *four dollars.*

For the second best do. do. - - - *two dollars.*

For the best wrought Counterpane - *four dollars.*

For the second best do. - - - *two dollars.*

For the best wrought hearth rug, having regard both to the quality of the work, and the expense of the material, *four dollars.*

For the second best do. do. do. - *three dollars.*

For the third best do. do. do. - - *two dollars.*

And should any other articles of domestic manufacture be exhibited, that discover industry and ingenuity, a proper notice will be taken of them, and suitable premiums awarded. But it is to

be remembered with regard to all the subjects of premium, that no premiums will be awarded, unless the articles offered are o *superior quality.*

For the encouragement of other useful branches of Manufactures, the Trustees offer the following premiums, to be awarded at the next Exhibition.

For the best tanned sole leather, not less than ten sides to be exhibited, with a statement of the process of tanning the same, *ten dollars.*

For the second best do. do. - - *five dollars.*

For the best tanned and dressed calf skins, not less than twelve to be exhibited, with a statement as aforesaid, *five dollars.*

For the second best do. do. - - *three dollars.*

For the handsomest and best made men's hats, of merino wool, the fur nap excepted, not less than five to be exhibited, with an account of the process of making and expense of the same, *five dollars.*

For the second best do. do. - - *three dollars.*

☞ Claims for Premiums, to be awarded the present year, must be entered with the Secretary of the Society, on or before 9 o'clock, A. M. of the day of Exhibition.

All persons, whether members of the Society or not, will be admitted as competitors.

Ten copies of the current volume of the *New-England Farmer*, will be awarded as Premiums at the next Exhibition, in such manner as the Trustees shall think proper. Those who obtain the premiums for the best management of a Farm, or succeed best in Agricultural Experiments, will probably have the preference.

A certificate of premiums, with a suitable engraving, will also be given the present year.

By order of the Trustees.

T. PICKERING, } *Committee of*
J. W. PROCTOR, } *the Trustees.*

OFFICERS

OF THE ESSEX AGRICULTURAL SOCIETY,

CHOSEN OCTOBER 5th, A. D. 1825.

TIMOTHY PICKERING, of Salem, *President.*

Ichabod Tucker, of Salem,
Benjamin Parker, of Bradford,
Paul Kent, of Newbury,
Solomon Low, of Boxford,
} *Vice-Presidents.*

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Daniel Adams, of Newbury.
James H. Duncan, of Haverhill.
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Stephen Abbott, of Andover.
Moses Newhall, of West-Newbury.
Jesse Kimball, jun. of Bradford.
Jacob Towne, jun. of Topsfield.
Temple Cutler, of Hamilton.
John Choate, of Ipswich.
Abijah Cheever, of Saugus.

Essex Agricultural Society.

REPORTS OF COMMITTEES,

AND

PREMIUMS AWARDED IN 1829;

AND A LIST OF

PREMIUMS OFFERED IN 1830;

WITH

REMARKS AND HINTS TO FARMERS, &c.

PAMPHLET No. IX, 1829.

PUBLISHED BY ORDER OF THE SOCIETY....MARCH, 1830.

SALEM:
W. & S. B. IVES, PRINTERS....OBSERVER OFFICE.
1830.

REPORTS

OF THE

Essex Agricultural Society in 1829.

I. ON THE MANAGEMENT OF FARMS.

The Committee of the Essex Agricultural Society for viewing farms, entered for premiums in 1829, have attended to that service and submit the following

REPORT.

Six farms were entered for premiums, viz :—

The farm of Amos Gould, of Ipswich;
Moses Litttle, of West Newbury;
Daniel Putnam, of Danvers;
John Adams, David Gray, James Stevens, } of Andover.

These farms were examined by the Committee the first part of July, and again in September.

The farm of Mr. Gould is situated in the north part of Ipswich, near Topsfield, and contains about three hundred acres, viz.

8 acres Corn and Potatoes
6 do. English grain
20 do. Upland mowing
35 do. Meadow and Salt Marsh
200 do. Pasture
13 do. Waste land.

The first 100 acres of this farm Mr. Gould purchased nineteen years ago, and the rest he has added at different times since. The committee were much pleased with the improvements made on this farm, by its present owner. These have been prosecuted with uncommon industry and perseverance. A great portion of this farm is a light gravelly soil, and the general aspect by no means

promising. When Mr. Gould came into possession it was in a bad condition—had been occupied many years by tenants and the land exhausted, producing not more than three tons of English hay and 20 tons of meadow and salt hay in a year. Mr. Gould has built on it 700 rods of good substantial stone wall; planted 700 apple trees, a great portion of which bear fruit; has reclaimed three or four acres of wet meadow, and converted it into very productive grass land; besides erecting convenient barns and out houses for the use of the farm. He keeps from 20 to 30 head of cattle, and in summer takes 15 or 20 to pasture for others. This farm and the improvements, and stock on it, free from all debts and incumbrances, are entirely his own acquisition—the fruit of the industry and economy of himself and family.

The farm of Mr. Little, in West Newbury, consists of about 100 acres. Twenty-four acres are improved for mowing and tillage, about 7 acres of which are in tillage annually; and two acres of fresh and salt meadow. His orchard, occupies about 10 acres exclusive of the trees by the fences inclosing his tillage land, and is used as a pasture for sheep and horses. There are 33 acres of pasture and 11 acres of wood-land. He has 50 pear trees, raised from the seed and grafted with various kinds of summer, autumn and winter pears—all of them in a bearing state; and 30 peach trees, which produce about 10 bushels annually. The soil on this farm is in general very good, and a great portion of it well cultivated, and produces good crops. Since the farm came into the possesson of Mr. Little, the produce has been nearly doubled. This has been done chiefly by making large quantities of manure, frequent ploughings, and top dressings where ploughing is not practicable. He cuts about 45 tons of hay—25 of which are good upland hay; and raises about 160 bushels of corn, 25 of wheat and 20 of oats. The buildings on this farm are convenient and well placed. Mr. Little is an ingenious mechanic, as well as a good farmer, and many of his farming utensils, as well as some of his buildings, are his own workmanship.

Mr. Daniel Putnam's farm was so fully described, in the report of last year, that it is unnecessary to go into particulars the present. The committee remarked the steady and judicious course of management on this farm. Mr. Putnam observes the rule which every farmer should keep in mind, but which some enterprizing farmers forget, viz: not to attempt more than he can perform, not

to try to subdue more land than he can cultivate thoroughly and manure well, so that it will bear good crops. The produce of his dairy from 8 cows, was 1127 pounds of butter, besides furnishing milk for a very large family, perhaps equal to the milk of two cows. The most effectual means used in the improvement of this farm, are the making and judicious application of large quantities of manure. This is a subject which the committee think more than any other requires the attention of the farmers of Essex.

The farm of Mr. David Gray has been repeatedly described in the Reports of this Society, and he has more than once obtained the premium offered for farms. It is sufficient to state, that Mr. Gray's farm exhibits proofs of the same persevering industry and good management, which have distinguished it before; that he continues the same judicious course of improvement, and is gradually rendering his farm more productive. Every farmer in New England knows that abundance of manure is necessary to the continued production of good crops. Mr. Gray is of opinion that every farmer has the means of making manure sufficient for his land. The committee think there is much truth in this, and his own experience tends to confirm it.

The farm of John Adams, Esq. in Andover, consists of about 113 acres of improved land, and 119 acres of woodland. The pasturage amounts to 54 acres, most of which has been ploughed and improved. He has 19 acres of natural meadow and swamp land in good grass, and about 35 acres in alternate husbandry for corn, English grain, and grass. In tillage from 10 to 12 acres annually, producing about 200 bushels of grain and 350 of potatoes. His average number of cattle is 25, including 6 or 8 oxen and 10 cows. He has a large number of apple trees, and makes about 100 barrels of cider annually. Mr. Adams has considerably improved the condition of his farm and his operations seem to have been conducted with skill and success. The soil of this farm appears in general good, but it is hilly and in some places rocky, and a large proportion of it more suited to pasture than tillage.

The farm of Mr. James Stevens, in Andover, contains about 90 acres, exclusive of woodland, viz :—about 12 acres in tillage, 36 or 38 acres of mowing, and the rest pasture. The land is in general level, the soil somewhat moist and cold, but strong, and when well cultivated, capable of producing great crops of most kinds, especially of grass. Mr. Stevens has done much to improve it, and the

produce now is double the amount it was ten years ago. Much however remains to be done, and few farms afford a better field for improvement. Perhaps no farmers in the county have a stronger inducement to an active and enterprizing cultivation than those of Andover; as no place in the county affords a better market for agricultural commodities. Mr. Stevens has made a great improvement in ten acres, of what was formerly pasture land, but so cold and wet and so much covered with bushes, as not to yield feed enough for two cows. The last season the produce of this field was 11 tons of English hay of the first quality, 90 bushels of corn, and 150 of potatoes.

The committee recommend that the premiums be awarded as follows:—

To Daniel Putnam, the third premium, - - - $24
" Amos Gould, the fourth premium, - - - - 21
" Moses Little, the fifth premium, - - - - - 18
" John Adams, the sixth premium, - - - - 15
" James Stevens, seventh premium, - - - - 12

The committee were of opinion that no farm offered was entitled to the first or second premium.

The committee would suggest, as very desirable, that candidates for the premium on farms should in future furnish a more particular and exact statement of the soil, modes of cultivation, different kinds of produce, the labour employed and the amount and value of each crop. The description required by the Massachusetts Agricultural Society in their offer of a premium for the best cultivated farm, is recommended to the attention of the farmers of Essex, who may claim a similar premium for this county, not however as being indispensable in every particular, but as a useful guide to them in making their statements.

Respectfully submitted, by the Committee,

FREDERICK HOWES,
DANIEL ADAMS,
JESSE PUTNAM,
JOHN ADAMS,
JAMES H. DUNCAN,
MOSES NEWHALL,
JOHN W. PROCTOR.

December 28, 1829.

AMOS GOULD'S STATEMENT.

To the Committee of the Essex Agricultural Society on Farms.

GENTLEMEN—My farm is situated in Ipswich, near Topsfield, and contains in the whole about three hundred acres of land. I cultivate annually about eight acres with corn and potatoes;—about six acres with English grain. I have annually about twenty acres of English mowing, and about thirty-five acres of meadow and salt marsh. I have about eighteen acres of wood land, and about two hundred acres of pasture land.

The stock on my farm usually consists of one horse, between twenty and thirty head of horned cattle through the year; in the summer, I take in from fifteen to twenty head of cattle to pasture—twenty sheep through the year,—and about the same number taken in to pasture in the summer.

This farm I purchased about nineteen years since; it then contained about one hundred acres—the other parts I have added to it at different purchases made since. At the time I purchased, it had been tenanted for many years, and was entirely *run out*—the fences were in a bad condition, and it did not yield more than three tons of English, and twenty tons of meadow and salt hay, in a year.

Since that time I have been gradually endeavouring to improve the farm, by such means as were in my power; and these were my own labour, and the produce of my land. What I have, I have earned myself, and what I possess, I own without any incumbrance, or claims from any one to my knowledge.

I have made upon the farm seven hundred rods of good and permanent stone walls. I have set out and planted, seven hundred apple trees, many of which are now in a thrifty and bearing condition. I have ditched and drained several acres of the wet meadow lands, and raised the same; so that this is now my most productive grass land. I have added to, and enlarged my buildings, so that they are now convenient for the purposes of my farm.

MANURE. I make from eighty to one hundred loads of manure annually, in my barn yard, and hog pen, by hauling in loam, and other materials collected from ditches, and about the farm. This, together with the droppings from the cattle, make about 150 loads in a year; I mix the two kinds together, before I use it upon the land,—thinking that more benefit is obtained by thus applying it.

Dairy. We have usually kept ten or twelve cows, and used the milk for the making of butter. The present year we have had but 8 cows. We have sold more than 400 pounds of butter, and made 600 pounds of cheese, besides the milk used by a large family. I kept less cows the present season than usual, in consequence of my my assistance in the house, being less; and thinking it as well to use my land for feeding of cattle, as to hire additional help in my family.

Labour. Myself and one man through the year—another man five and a half months—two boys, one 14 years old, another 12 years old—have hired 12 days work. Have worked out with my team to the amount of about one hundred dollars.

The produce of my farm, as near as I can ascertain it, is as follows:—

	1828.	1829.
English Hay, - - - -	30 tons	20 tons
Meadow and Salt Hay, - -	50 tons	40 tons
Indian Corn, - - - -	250 bushels	175 bushels
Potatoes, - - - -	250 bushels	300 bushels
Cider, a small quantity in each year—		
Pork, - - - - -	1400 pounds	1700 pounds
Beef, - - - - -	2000 pounds	1000 pounds
Rye, - - - - - - -		40 bushels
Oats and Barley cut for fodder, - - -		2 tons.

Nine calves, sold for forty-five dollars, at four weeks old.

Had I have known in the early part of the season, that a minute account of my produce would have been expected, I could have been more particular—I have endeavoured not to over rate it.

AMOS GOULD.

November 30th, 1829.

MOSES LITTLE'S STATEMENT.

To the Committee on Farms for 1829.

Gentlemen—Agreeable to your request, I transmit to you the following account of the management of my farm. My farm is situated in West-Newbury, and contains about one hundred acres, twenty-four of which I improve as mowing and tillage; of this I plant from four to five acres with corn and potatoes annually, and

sow from two to three acres, the remainder I use for mowing. I also mow twenty-two acres of fresh and salt meadow. I have about ten acres of orcharding, exclusive of those trees which are by the fences, that inclose my tillage land, the most of which I have raised from the seed, and I use the land where my trees are, chiefly for pasturage for sheep and horses. I have eleven acres of wood land, and thirty-three of pasture land. I have fifty pear trees, the most of which I have raised from the seed and ingrafted them with various kinds of summer, fall, and winter fruit, and all of them are in a bearing condition; I also have thirty peach trees, the average crop of which is ten bushels.—The stock, which I keep, consists of from sixteen to eighteen head of neat cattle. I have seven cows, four oxen, and five young cattle, two horses, from twelve to fifteen sheep, and from four to seven swine.

Manner of making Manure. During the winter months, I litter my barn yard with meadow hay, where I yard my stock, which remains there until about the last of November, occasionally replenishing it with meadow mud and stuff, which is gathered from under fences and other places on the farm. I carry into my hog yards wash from the road, meadow mud, and the droppings from my horses, that the same may be mingled together by them and recieve their fertilizing properties. The quantity of manure which I make in this manner is about one hundred and fifty common carts full, sixty of which are made in winter, about fifty are made during the summer and fall months in my barn yard, and about forty which I take from my hog yards annually.

Manner of preparing my Tillage Land. I plough up my grass land in the spring, but a short time before I want to plant it, then harrow and furrow it about three feet a part, and manure it in the hills with hog and sheep manure for potatoes;—the next year I plant it with corn. I spread from twenty to twenty-five common carts full of my winter manure on an acre, then plough and harrow it, and furrow it about four feet a part, and put from ten to twelve common carts full of my summer manure, which is placed on the ground the autumn before in the hills; the next year the land is in good order to lay down to grass. Then I give it a small dressing with fine manure, plough it, and sow it with wheat, or oats, and herds grass seed only. In this manner, I go over with my field land once in four or five years; except a few acres, which is of a heavier soil. I usually top dress, with fine manure and materials

which are gathered from my watering places, once in four or five years.

Since I have had the management of this farm, (which is about twenty years) I have made six acres of my field land out of a rough, stoney and almost barren pasture. Five acres of my orcharding are on land which I took in its natural state, covered with trees, bushes and full of small stones, the produce of which land was scarcely any thing.

The stone wall which I have built is five hundred rods, the stones for which, some of them were near, and some of them at the distance of half a mile; the most of this I have done at intervals, with the ordinary labor which has been employed to manage the farm. I have my farm now all fenced with a good stone wall, on the out side; my cross fences and the fences round my orchards are stone wall, with the exception of about fifty rods.

Since this farm came into my hands, I have, by paying attention to making manure, stiring the soil often, and where it has not been practicable to plough, top dressing made the farm to produce nearly double that it formerly did.

The produce of my farm the present year is:—

English Hay, -	25 tons	Beats, - -	3 bushels
Salt and Fresh Hay,	20 "	Beans, -	5 "
Indian Corn in the ear,	317 bush.	Squashes, -	800 pounds
Wheat, - -	25 "	Pumpkins, -	12 carts full
Oats, - - -	20 "	Cider, - -	11 barrels
Pears, - -	8 "	Winter Apples, -	33 "
Onions, - - -	3 "	Cabbages, -	10 dozen
English Turnips, -	3 "	Pork, -	1000 pounds.

This is the produce of my farm the present year, besides peas, beans, and vegetables of all kinds sufficient for two families.

I have since the third day of last March, raised twenty-nine pigs, which sold from two dollars to two dollars fifty cents each.

The produce of seven cows is as follows:—

Cheese 900 pounds, mostly new milk.

Butter 299 pounds, besides the milk used in two families, one consisting of seven, the other of five persons.

The labour employed to manage the farm, from the first of December, 1828, to the first of December, 1829, is myself and son;—I have paid for labour twenty-one dollars and seven cents;—labour done by myself and son at mechanical business, amounts to sixty seven dollars and fifty cents.

MOSES LITTLE.

DANIEL PUTNAM'S STATEMENT.

To the Committee on Farms, of the Essex Agricultural Society, 1829.

GENTLEMEN—For an account of my farm, as to the quantity of land which it contains, the quantity which is tilled, the quantity pastured, and for an account of my trees, stock, and means and manner of making manure, I would refer to the statement made by me last year;—which may be found commencing on the 23d page of the pamphlet published in 1829.

I have only to add to that statement, that I have this year been preparing about three acres of rough pasture land for tillage.

The products of my farm this season have been as follows:—

English Hay,	20 tons
Meadow Hay,	8 "
Second Crop,	1½ "
Indian Corn, 380 baskets, each weighing 43 pounds, making in the whole 16340 pounds; allowing 80 pounds for a bushel, we have 204 bushels and one peck.	
Barley,	35 bushels
Potatoes,	530 "
Turnips,	265 "
Pears,	8 "
Summer Apples,	40 "
Winter Apples,	40 barrels
Cider,	10 "
Cheese, (two meal)	115 pounds
Milk sold,	60 gallons
Butter,	1127½ pounds
Pork,	2000 pounds
Calves, (eight) from the cows, sold for	44 dollars.

Besides the above, the farm has yielded peas, beans and vegetables of all kinds, sufficient for the use of a family which consisted during 4 months of the season of 20 persons, and at no time of less than 12. I would say here that the quantity of winter apples on the farm, both the last year and this, has been less than usual; the average crop is from 80 to 100 barrels. I have had 150 barrels in a year.

A particular account of the proceeds of the Dairy.

In March we made		10 lbs of butter.
April 3		6
	10	19
	17	21
	24	23½
		——79½
May 1		24½
	8	29½
	15	35
	22	41
	29	30
		——160
June 5		40½
	12	49½
	19	46
	26	44½
		——180½
July 3		40
	10	40
	17	33
	24	32½
	31	28
		——173½
Aug. 7		33
	14	31½
	21	32
	28	34
		——130½
Sept. 4		32
	11	32¼
	18	31
	25	29½
		——124¾
Oct. 2		33
	9	31¼
	16	35
	23	31¼
	30	32½
		——163

Proceeds of the Dairy—amount brought over 1005¼ lbs.

Nov. 6	- - - -	26
13	- - -	28½
20	- - - -	31¼
30	- - -	30
		——— 122¾
	Total, -	1127½ lbs.

I have had this season eight cows. During the summer months, four or five of the family were accustomed to use milk both at breakfast and supper; and I suppose that we used in the family the milk of two cows or more.

Quantity of Labour from the first of November, 1828, *to the first of November*, 1829.

Myself the whole year—One man 10 months—Another man 9 months—And another man 5 months. Besides my own labour, there were 624 days work done upon the farm, and in the manufacture, that is, the cutting and preparing for those who make them of 13,000 pair of shoes—The shoes, (taking the estimate of Messrs. Putnam and Preston given in the pamphlet above referred to, page 26, as correct) would require the labour of one man for 375 days. Deducting these 375 days from the above 624—we have left for labour on the farm 249 days for one man, in addition to my own labour.

DANIEL PUTNAM.

Danvers, November 30th, 1829.

JOHN ADAMS'S STATEMENT.

To the Committee on Farms.

GENTLEMEN—The number of acres of land I improve is 113. Pasturage about 59 acres—the most of which has been ploughed and improved. My tillage land for raising corn, grain and grass, comprises about 35 acres. Natural mowing, meadow and swamp land includes 19 acres. Woodland, (principally young wood) is about 119 acres. I improve as tillage, for corn and grain from 10 to 12 acres annually. I raise from 40 to 50 bushels of corn upon an acre, and generally put my manure in the hill. I raise all the

different kinds of small grain—such as wheat, rye, barley and oats—generally not far from 200 bushels in all annually. When I lay down my ground to grass, I carry on my winter manure and plough it in. My average number of horned cattle is about 25; two horses, and twenty sheep. My stock usually consists of from six to eight oxen, and ten cows—remainder young cattle. I generally sell, six or eight loads of English hay. I carry upon my farm about 120 loads of manure; 60 of which I put upon my corn hills. I raise about 350 bushels of potatoes a year. I have set out and engrafted a large number of apple trees, which are beginning to bear the best kind of fruit. My average number of barrels of cider is about one hundred a year. I pay for labour, which I hire, about 140 dollars annually.

JOHN ADAMS.

Andover, November 27th, 1829.

DAVID GRAY'S STATEMENT.

To the Committee of Farms in 1829.

Gentlemen—My farm, situate in the South Parish of Andover, contains about one hundred acres—about thirty acres is used for tillage and mowing—the remainder for pasturing. For a more particular description of my lands, I refer to my statements heretofore published by the Society.

I have planted the present year six acres, with corn and potatoes—the produce is as follows :—

Indian Corn in the ear, - - - - -	468 bushels
Potatoes, - - - - - - - -	200 "
Pumpkins, - - - - - - -	9 carts full
Round Turnips, - - - - - -	20 bushels.

I sowed, the last spring about one and a half acres, with barley, oats, and flax, and obtained a good crop of each.

Stock. I usually keep four oxen, eight cows, and a number of young cattle—making my stock on an average about twenty-six head of horned cattle—one horse, and fourteen sheep. This stock is fed with the fodder obtained from about twenty-five acres mowed annually;—and I usually sell from two to four tons of English hay.

I cannot state the number of pounds of butter and cheese made, not having kept a particular account of the same;—but can say,

that I have found my dairy, when well attended to, one of the best sources of income, on my farm.

Orcharding. I have a large number of young and thrifty apple trees, in a bearing condition. They produce as well as any other trees that I have seen, and this without any extra expense of cultivation. They are scattered in different parts of my tillage and pasture land; and generally placed in the best soil, and where they would be most likely to grow. I have obtained from them about fifty barrels, of fall and winter apples, and about sixty barrels of cider the present season.

Labour. Two men and one boy have been employed on the farm. We have occasionally done labour with our teams off of the farm—amounting to half of the labour of one man, through the season.

For my methods of making manure,—clearing my lands of rocks, of which I have a plenty;—and fencing them with stone wall, at which I have done much,—I would refer to the statements before mentioned.

DAVID GRAY.

Andover, November 27th, 1829.

JAMES STEVENS 2d's STATEMENT.

To the Committee on Farms.

Gentlemen,—According to the best of my knowledge I give you an account of my farm and the management. My farm contains about ninety acres, exclusive of woodland. It is divided nearly as follows—about forty acres of pasturing, and the remainder mowing and tillage. I usually sow from four to six acres, and plant from six to eight acres, annually. The manner of preparing the land for the seed is as follows:—After the crop of grass is taken from the field, as soon as convenient I plough the ground, let it remain till spring, then I cross plough it. I usually plant the same land two years in succession. I then sow it with barley or oats, and lay it down to grass. My manner of applying manure to this land is, after the first ploughing in the spring I spread the green manure, made at the barn during the past winter, and plough it in deep so as to prevent evaporation. Manure that is made in the

barn-yard, during the summer months, I cart out in the month of November, and lay it in large heaps. In the spring I cart out from my hog-yard all the manure to the same heaps taken from my barn-yard; I then have it all thrown over and mixed together; it is then prepared for the hill. I then put a large iron shovel full in a hill; and in this way, with a common season, I have a good crop of corn, generally from forty to fifty bushels to the acre.

Making Manure. I cart into my barn-yard a quantity of green sods, such as I get from the sides of the road, and muck taken from low wet places, this, together with what my cattle make during the summer months, is about forty loads. I also cart of the same material into my hog-yard at several different times, so as to enable my hogs to have a fresh supply of earth. My hog-yard is so constructed as to receive all the manure from my horses, and with the aid of my hogs I am able to take from the hog-yard about fifty loads in a year.

Grass Land. I have a variety of this kind of land. On my plough-land I generally get, three or four of the first seasons after sowing, from one and a half to two tons to the acre. It is generally ploughed once in about seven or eight years. I have not been in the habit of giving this kind of land a top-dressing. The last year, on about three acres, I spread thirty loads of manure from my barn-yard, and I was satisfied that it very much increased the crop of grass the present season. I have for a number of years put a top-dressing, composed of rich soil, wash, &c., on a number of acres not capable of being ploughed, and increased not only the quantity but also the quality. I think there is double the quantity of hay cut on my farm now that there was ten years ago.

Pasturing. This kind of land is generally cold, flat and much inclined to bushes. The improvement on this kind of land has principally been confined to about ten acres, with the exception of cutting bushes on the remainder. This ten acres, eight years since, would not yield feed sufficient to keep two cows through the season. It was principally covered with killamb, blue flag, &c. I have ploughed it, and part of it is left in ridges with ditches sufficient to drain it. The last season, according to the best of my judgment, without weight and measure, eleven tons of the first quality of English hay, about ninety bushels of corn, and about one hundred and fifty bushels of potatoes were taken from it—which,

together with the labour may be valued at the moderate price of ten dollars per ton, - - - - $110 00

Ninety bushels of corn, at 75 cents per bushel - 67 50

One hundred and fifty bushels potatoes at 25 cents per bushel, - - - - - 37 50

Total value of the produce, labour included, - 215 00

On the above ten acres I have set out about seventy young apple trees; about fifty of them are grafted with the best of winter fruit. The orcharding on the rest of my farm is scattered. Many of the trees have within a few years been grafted.

My stock generally consists of one horse, sometimes two, and about fifteen head of neat stock, composed of four oxen, five cows, and the remainder young cattle, I commonly have from six to ten swine. I think I can estimate the labour on my farm not to exceed that of one man and a boy, with the exception of the hay season, when an additional man is necessary.

I am, very respectfully yours,

JAMES STEVENS, 2d.

Andover, November 25th, 1829.

II. IMPROVEMENT OF WET MEADOW LANDS.

The Committee on the Improvement of Wet Meadow Land, submit the following

REPORT :—

Parcels of improved meadow or swamp land were offered for examination to the Committee by

Mr. Jacob Osgood, of Andover;

Col. Jesse Putnam, of Danvers;

Rev. Henry Colman, of Salem, on his farm in Lynn.

Mr. Osgood has reclaimed about two acres of a bog meadow, so soft and spungy that it was very difficult to walk over it without sinking into the mire. The improvement, begun about fifty years ago, and continued from time to time since, has been by draining it,—then putting on sand to the depth of an inch and a half, and

adding a small quantity of manure. By this process it has been converted into good mowing land. For a particular description of the process of reclaiming wet meadow land, in this and the following instances, the Committee would refer to the statements accompanying this report.

Col. Putnam has at different times reclaimed about two acres and three-quarters of wet meadow—the last acre and a quarter in 1827, 28 and 29—by ditching and carrying on sand in large quantities. Loam he thinks will not do for this purpose. The expence has been large, but the net income of the meadow since the improvement has amounted on an average to twelve dollars an acre annually. Both Mr. Osgood and Col. Putnam have in turn obtained the first premium offered by this Society for the best cultivated farm.

Mr. Colman's reclaimed meadow on his farm in Lynn, near Salem, was examined by the Committee. Several acres of wet land, nearly worthless before, have been effectually drained and and now produce large crops in grass and tillage. This improvement has been made by means of covered drains, excepting the main drain, and the operation seems to have been conducted in a very judicious and economical manner. The Committee think the mode adopted by Mr. Colman a very good one, and perhaps the best where it is practicable. For a very satisfactory account of this improvement they would refer to his statement. This farm has been but three or four years in the possession of Mr. Colman; and the Committee are not acquainted with any farm in the County where greater improvements have been made in so short a time, or prosecuted with more judgment and on a better system.

The farm of the late Col. Pickman, of Salem, now owned by his family, and occupied by Mr. Erastus Ware, was visited by your Committee. This farm, which is known to be among the largest and best cultivated farms in the County, has been described in a former report to this Society. Agriculture is carried on by Mr. Ware with skill and success, and the farm is becoming gradually more rich and productive.

As only a part of the Committee were able to visit and examine the Meadows entered for premiums in two instances; your Committee think it may be more satisfactory to refer the award of the premiums altogether to the decision of the Trustees.

Respectfully submitted,

F. HOWES, *Chairman.*

December 30, 1829.

At a meeting of the Trustees of the Essex Agricultural Society: the premiums on the Improvement of Wet Meadow Lands were awarded as follows:—

Rev. Henry Colman, 1st premium, - - 20 dollars.
Col. Jesse Putnam, 2d premium, - - - 10 "

HENRY COLMAN'S STATEMENT.

To the Committee of the Essex Agricultural Society on Reclaimed Meadow.

GENTLEMEN—The reclaimed meadow which I propose for the examination of the Committee of the Essex Agricultural Society contains more than one acre and a quarter.

In the fall of 1827 I began clearing it. There were many bushes to be cut down and it was covered with coarse grass and rushes. A large part of it was constantly overflowed or filled with water, presenting a deep, miry, peaty soil, and scarcely in some places passable for a man, much less for cattle. In some parts the peat soil is deep; but in most cases at the distance of three or four feet we reach a hard bottom of clay and gravel.

I began the improvement of it by making a drain of three feet deep and about two feet wide in the centre for the whole length of the meadow to a place, where by cutting through a very rocky piece of ground, which formed a kind of embankment, there was a sufficient descent to take off the water. Then by forming drains of less dimensions round the out side of the meadow at the foot of the ascending ground, I cut off effectually all the springs, which flowed into it from the neighbouring hills; and by connecting the side drains with the main drain by lateral branches have turned all the water into the centre drain, and thus led it off from the field. The drains are covered excepting the outlet to the main drain. A channel of about four or six inches square was laid on the bottom of each ditch with such stones as we could find in the vicinity; they were then covered with the flattest or most suitable stones, which presented themselves; a quantity of small stones was then thrown in promiscuously; a layer of thatch or straw placed on these, and enough dirt returned to fill it up; and the whole levelled and smoothed off. The top stones of the drain were always kept so far below the surface as not to interfere with the plough.

My meadow is completely drained. It was ploughed in the spring, and promises to yield a good crop of potatoes.* No water now stands upon it and none remains after rains longer than upon any other part of the farm, which is as level. I design to plant it one year more, when I think all the sods and hillocks will be completely crumbled and then lay it down in grass, confident of success from the result of a similar experiment on a piece of land about one fourth of an acre, which from being impassable, worthless, and filled with skunk cabbage and other noxious weeds, is now the best piece of grass land on the place; and though drained and laid down after one summer's fallow with manure and with sowing only a few turnips, with hoeings sufficient to break the sods to pieces and afterwards sown with grass seed and carefully rolled, has this year yielded two abundant crops of excellent hay.

I have applied sea sand to wet land, ploughing it in, but perhaps from using it too copiously thought that the land was impoverished by it. I have seen meadows made hard by covering them with gravel; but besides the expense deem it of doubtful expediency to cover land with a perfectly barren and inert substance. My own experiments in this way have not been satisfactory; and as the late intelligent President of the Essex Agricultural Society remarks,† "if meadows admit of being thoroughly drained by ditching, I would never carry on gravel or sand, absolutely barren substances." In most cases of meadows reclaimed by gravel the produce has been of a very ordinary quality; and filled with plants accustomed to wet and soaked lands, which afford an herbage neither savory nor nutrious to cattle.

The drains formed as above, where stones are near and abundant are not expensive; and if well made will stand, according to the best writers, for half a century. An intelligent English farmer recommends that whenever made, they should be laid down on a plan of the farm, so that if occasion should require they may be found and repaired without difficulty. They should be sufficiently numerous and capacious to take off all the water that is likely to be led into them without much delay; otherwise as it is sometimes termed they become blown, that is, the water forces itself up on the top of the ground. I have several acres of wet land, of little

* The crop was planted in very wide rows and measured about one hundred and fifty bushels—November, 1829.

† Col. Pickering.

value before, which have been laid dry in this way, and are now under easy cultivation, bearing good crops of grass, potatoes, and Indian Corn.

I am, Gentlemen, very respectfully, your obedient servant,

HENRY COLMAN.

September 30, 1829.

JESSE PUTNAM'S STATEMENT.

To the Trustees of the Essex Agricultural Society.

GENTLEMEN—Having observed for several years past, that premiums were offered by your Society for the improvement of wet meadow lands;—and not having learned that any persons have presented claims for these premiums, in years past, I am induced to state for your consideration, the manner in which I have dealt with my meadows, as I have had opportunity. It will be a source of satisfaction to me, if my mode of management shall be found to meet your approbation. It was not done with a view to obtaining any other premium, than that which I expected to find, in the improved produce of the land, both in quantity and quality;—and in this I have not been disappointed.

My first experiment was made on about three-fourths of an acre of land in 1807 and 8. It was a miry, wet meadow; spongy, and impossible to be carted on, except when frozen. It yielded very little but polypod, and very little of that. We considered what grew on it, as of scarcely any value. I commenced by carting about two hundred loads of stubble stones, and spreading the same upon the surface of the meadow, when it was frozen. I then ditched it, with ditches about three feet wide, and between two and three rods apart, and spread the materials that were taken from the same over the stones. I then carried on gravel and loam sufficient to cover the stones, and make the surface smooth. Where there were no stones, the gravel was carried on from four to six inches in depth. After this I put on a coating of soil and compost manure, about one inch thick, mixed together. Sowed it down with herdsgrass, red top, and clover, with oats. The first year it yielded a fair crop of oats, that were mowed for fodder. The second year, it produced at least two tons to the acre; and has continued to produce as much as that, each year since. In addition to the first

crop, I have every year mowed a second crop upon it. I have calculated to put the same value of compost manure upon it in each year, as I obtained second crop from it in the preceeding year. I have spread upon it, from six to eight loads of compost manure annually—but these would not average to contain more than one chord of real manure annually. The second crop has paid for all I have done to the land since it was first prepared. I have sowed grass seed upon it about every third year.

In 1811, I made another experiment on about half an acre of meadow, by carrying coarse rocky gravel upon it. The gravel was laid upon it from six to twelve inches thick. Experience has proved that too much gravel was carried on. It has not answered my expectations.

In 1821 and 2, I made another experiment on about three-fourths of an acre of wet, miry meadow, situate to the east of my house, near the road. I commenced here by turning the soil upside down, and throwing it into ridges between two and three rods wide—the materials taken from the ditches were thrown upon these ridges. The meadow was flowed in the autumn—and upon the ice in the winter, I carried on sand and spread it upon the ridges about four inches deep. In the spring I planted these ridges with potatoes, dunged with coarse manure, and obtained about a middling crop. The next winter I carried on a coating of soil and compost manure—and in the spring sowed it down with oats, herds-grass, red top and clover. The crops since have been the largest grass I have had upon the farm, and of a quality that commanded as good a price as any that I had to sell. I have each year mowed a good second crop also. I have put a dressing of compost manure on it each year.

In 1827, I reclaimed about half an acre of meadow, at the lower end of my field in the same way

In 1828 and 1829, I have also brought in about three-fourths of an acre more of my meadow land in the same way.

This kind of land requires manuring and dressing each year—and the second crop it produces will usually pay for this dressing.

I have found sand the best material to carry upon meadows. The ditches should be kept clear, that the water may run off—otherwise the meadow grass will return. It will not do to carry loam upon meadows—if you do, it will all become meadow again, in a few years.

The expense of doing what I have done to my meadows, would have cost me one hundred dollars an acre if I had have hired it done, and had to pay for the labour. But I have done it, at such times as I had leisure for myworkmen and teams; and when I could not have earned more than fifty dollars, in any other way. I therefore estimate the expense to me about fifty dollars an acre. And I think the net income of this land has averaged at least twelve dollars an acre annually. I have found my labour as well applied here, as in any part of my farm.

JESSE PUTNAM.

Danvers, December 28, 1829.

Essex, ss. Dec. 28, 1829.—Subscribed and sworn to before me,
John W. Proctor, *Justice of the Peace.*

JACOB OSGOOD'S STATEMENT.

To the Committee of the Essex Agricultural Society on Farms.
Gentlemen—

I have on my farm about two acres of improved meadow land, which at the time I began to cultivate, it was merely a bog meadow, so spungy and soft, that one could not walk over it but with the greatest caution, without sinking in the mire. The produce was of little or no value. I commenced about fifty years since my improvement of this meadow land by draining it; after which I carted on sand about one inch and a half in depth, and then put a small quantity of manure upon it, and sowed in redtop, herdsgrass and some clover seed, and so continued to do until it was well covered with English grass. The manure I used was sand, which had lain one year in a yard, where I had some dry cattle. As I have no cellar under my barn, I put sand where I throw out my winter dung. My sheep house and yard are well supplied with sand—all of which I annually cart on to my cultivated meadow land. The labour of improving this land has been performed, at a season of the year when other labour on the farm is not pressing, to wit, in the winter, after the meadow is frozen enough for carting over, and before the earth is covered with snow. The expence of the cultivation cannot therefore be accurately estimated. But after two or three of the first years, the annual improvement of the pro-

duce amply repaid the annual labour. I consider it now as profitable grass land as any on the farm. I have pursued this course, for the time mentioned, and the produce of this meadow land for the three last years, has been more profitable than in any of the preceeding years, although the quality of the grass has rather depreciated, yet the quantity has increased in a greater proportion, and it is now good stock hay.

Yours respectfully,

JACOB OSGOOD.

Andover, November 27th, 1829.

III. ON PLOUGHING—DOUBLE TEAMS.

The Committee upon Ploughing with two yoke of Oxen Report :—

That seven teams were entered for premiums—and performed the work in the following manner ;—

No. 1.	Enos Kendrick, of Amesbury,	30	furrows in	58 min.
" 2.	Moses Kimball, of Boxford,	28	"	71
" 3.	John Bricket, jr. of Haverhill,	23	"	50
" 4.	Richard Jaques, of Newbury,	28	"	64
" 5.	Perley Tapley, of Danvers,	28	"	64
" 6.	Isaac Osgood, Esq. of Andover,	28	"	61
" 7.	Robert Stewart, of Haverhill,	24	"	64

The Committee award premiums as follows :—

To	Enos Kendrick, the first premium, -	16 dollars.
"	Perley Tapley, the second premium, -	12 "
"	John Bricket, jr. third premium, -	8 "

The whole work, by all the teams, was performed so well, that the Committee had difficulty in deciding among the claimants, and therefore take the liberty to recommend that a gratuity be awarded to Richard Jaques, Isaac Osgood, Esq. and Robert Stewart, of four dollars each, instead of awarding the fourth premium to any one of them.

The team of three horses, by Rufus Slocum, of Haverhill, performed its work with skill and dispatch—to wit, in 45 minutes ; and

as well as the average of the Ox-teams; but as no premium was offered for horse teams, the Committee recommend a gratuity of three dollars to be given to Mr. Slocum.

All which is submitted.

Haverhill, Oct. 1, 1829. I. TUCKER, *Chairman.*

ON PLOUGHING—SINGLE TEAMS.

The Committee on Ploughing with Single Teams, REPORT:—

That four teams were entered for ploughing—That the lots were drawn as follows:—

Lot No. 1. Jonathan J. Porter, of Boxford, ploughed one fourth of an acre in 54 minutes, with 38 furrows.

Lot No. 2. Henry Martin, of Salem, ploughed one fourth of an acre in about 54 minutes, with 46 furrows.

Lot No. 3. Daniel Putnam, of Danvers, ploughed one fourth of an acre in 58 minutes, with 42 furrows.

Lot No. 4. Perley Tapley, of Danvers, ploughed one fourth of an acre in 54¼ minutes, with 47 furrows.

The ploughing was, in the opinion of the Committee, performed in a more workmanlike manner and with less labour than in any former year. The ploughs used by Tapley and Putnam laid the furrow slice the closest, and a majority of the committee are of opinion that this ploughing is preferable in common cases.

The plough used by Henry Martin went apparently with much ease, and performed the work well; but in the opinion of the committee is better adapted to seed sowing, than to ploughing sward ground.

The plough used by Jonathan J. Porter was of bad construction, for any use, there not being sufficient depth under the beam to enable it to keep itself clear. It was however drawn by a superior pair of oxen and held by an experienced driver, and with a plough of good construction he would probably have done work equal to either team.

Taking every thing into account, the Committee have awarded the

1st premium of 12 dollars, to Perley Tapley, of Danvers.
2d premium of 9 dollars, to Daniel Putnam, of Danvers.
3d premium of 6 dollars, to Henry Martin, of Salem.
4th premium of 3 dollars, to Jonathan J. Porter, of Boxford.

All which is respectfully submitted.

DANIEL ADAMS, 3d, *Per order.*

ON WORKING OXEN, AND BEST PLOUGH.

The Committee appointed to award the premiums offered for the best Plough, and the best working Oxen, consisting of Jesse Putnam, Moses Wingate, Daniel Fuller and Stephen Abbot, have attended to that duty and REPORT :—

That they examined the cattle as they worked upon the plough, and also with a loaded waggon up and down hill, and in backing such loads. Many of the cattle were of good size and well trained. The Committee were unanimous in the opinion that the premiums for the best working oxen be awarded to Perley Tapley, of Danvers, for his brindle oxen six years old.

The whole number of ploughs used in the field was twelve, but eight of which were entered for premium.

The construction of these ploughs was various, some of them having cast iron mould boards, with cast iron chips, and wrought iron shares—some with cast iron chips, mould boards, and shares, and some the iron work all wrought.

The Committee were divided in the opinion as to the utility of having the chips of cast iron. The ploughs used by Mr. Putnam and Mr. Tapley, of Danvers, were considered the best in the field. These ploughs were made by Messrs. Pike and Spaulding, of Danvers. The Committee, after much deliberation as to which should have the preference, have agreed that the premiums be awarded to Mr Daniel Putnam, for his plough, with cast iron mould board, wooden chips, plated and wrought iron share.

The ploughs that made the best work, were furnished with a wheel under the beam, and a revolving cutter. These additions the Committee consider essential improvements in the construction of the *breaking up plough.*

Respectfully submitted.

JESSE PUTNAM, *Per order.*

Haverhill, Oct. 1, 1829.

IV ON LIVE STOCK.

THE Committee for awarding the premiums on the Animals exhibited this day at the Cattle Show in Haverhill, REPORT as follows:

Bulls.

They award the premium for the best bull, two years old, to Samuel Pecker, of Haverhill, - - - - - 15 dollars.

The premium for the second best bull, two years old, to James H. Duncan, of Haverhill, - - - - - 10 dollars.

To Billy Emerson, of Topsfield, for a fine bull calf, exhibited by him, the Committee recommend a gratuity of - 5 dollars.

Two bulls, three years old, one owned by Samuel Pecker, the other by B. Walker—were offered to the view of the Committee. They were large and well formed animals, but considering their age, the committee did not think either of them entitled to a premium.

There were also two fine bulls, seventeen months old—one owned by Samuel Bailey, the other by Noah J. Noyes.

Milch Cows.

The premium for the best milch cow, the Committee award to Jeremiah Stickney, of Rowley, - - - - 15 dollars.

The premium for the second best, to John E. Goss, of Bradford, - - - - - - - - - - 10 dollars.

For the third best, to John Torrey, of Newbury, 5 dollars.

Mr. Stickney's cow was remarkable for the quantity and quality of her milk, and the large size of her calves. Kept only on hay last winter, she gave milk to the time of her calving in April, and her calf then weighed 93 pounds; at six weeks old, 190 pounds; and at five months and three days old, 424 pounds. The average quantity of her milk in June, July and September was upwards of 16 quarts per day. For a more particular account of this cow, which must be interesting to all farmers concerned in the dairy, the Committee would refer to the statement of Mr. Stickney which accompanies this report.

The Cow of Mr. Goss, during the present season, from April 16th, to September 30th, gave 375 gallons of milk, weighing 3902 pounds. Four gallons of the milk made 1 pound 14 ounces of butter.

Heifers.

The Committee award the premium for the best heifer, to James Ayer, of Haverhill, - - - - - 10 dollars.

For the second best, to Rev. Abiel Abbot, of Andover, 5 dollars.

Mr. Ayer's heifer was two years old in April last; calved May 6th, and gave during June and July, 11 quarts of milk per day; and at this time about 6¼ quarts. Her only food was what she obtained from a very high and dry pasture.

The heifer of Mr. Abbot was three years old—her milk of a good quality, about 9 quarts per day during the best part of the season, and held out much better than that of his other cows, especially in the winter.

Two very fine heifers, belonging to William P. Endicott, of Danvers, were exhibited, but not for a premium; one of them was 15 and the other 16 months old.

Two good heifers were also offered to the view of the Committee by Mr. John Torrey.

STEERS.

For the best pair of two year old steers, the Committee award the premium to James Ayer, of Haverhill, - - 5 dollars.

For the best pair of three year old steers, a premium of 10 dollars was offered by the Trustees. The Committee after some hesitation recommend, that it be divided between two of the candidates, as follows,

To David Gray, of Andover, for his pair of three year old steers, - - - - - - - - - - 5 dollars.

To Jesse Putnam, of Danvers, for his pair of three year old steers, - - - - - - - - - - 5 dollars.

To William P. Endicott, of Danvers, for a fine pair of yearling steers, sired by Admiral, the Committee recommend a gratuity of - - - - - - - - - - - 5 dollars.

A pair of twin steers, 5 months old, belonging to Mr. Endicott, were at the exhibition, and were very beautiful and promising animals.

A large and well formed pair of four year old steers, belonging to Rev. Abiel Abbot, and another similar pair, to Moses Clark, were exhibited, but not for a premium.

A remarkably large ox, of a fine form, eight years old, and altogether a noble looking animal, raised by Moses Newell, of West Newbury, was exhibited by him. The weight of the ox was 2223 pounds. For this ox the Committee recommend to Mr. Newell a gratuity of - - - - - - - - - - 7 dollars.

To Moses Clark for a pair of yearling steers, deemed very good, the Committee recommend a gratuity of - - 3 dollars.

The number of cattle at the Show, was not so great as in some former years, but they were perhaps not inferior in quality. The milch cows were considered very good. The Committee regretted hat so few cows and oxen were seen at the exhibition, except the oxen at the ploughing match, where the teams were more numerous than usual. It is true that the farmers in Essex do not raise so much of their own stock as those in other agricultural counties. But Essex can and ought to excel in the products of the dairy, in the number and excellence of its milch cows, and in its working oxen. No articles, which the farmer brings to market, command a more ready sale than butter and cheese, especially the former. None have better sustained their prices during an almost universal depression of agricultural produce, as well as of other commodities.

In Worcester, and in some other counties, great numbers of the best working oxen are brought together on these anniversaries. If the patriotic farmers of Essex would imitate this example, it would add much to the interest, as well as to the utility of these exhibitions. Few counties possess greater advantages for raising good oxen, or a soil on which they can be more profitably employed, or can furnish a more ready sale for them, whether in the condition of working oxen or fat ones.

The Committee are of opinion, that there are many animals in this county equal if not superior to some which obtained the premium. If the owners choose to keep them at home, and suffer the premium to be given to their neighbours, for inferior animals, they have nobody but themselves to blame.

FREDERICK HOWES, *Chairman.*

Haverhill, Oct. 1, 1829.

JEREMIAH STICKNEY'S STATEMENT.

The cow offered, by the subscriber, was purchased by him in the spring of 1828. She was bred in West-Newbury, and was eight years old last spring, as appears by an accompanying certificate. This Cow was considered by her former owner, as very remarkable for the calves she brought, and for the quantity and quality of the milk she gave. She gave, kept only on hay, milk up to the time of

her calving, last spring, which was on the 25th day April, when she brought a cow calf, whose weight at its birth was 93 pounds. At the age of six weeks, its weight was 190 pounds. The weight of the calf at the age of five months and three days was 424 pounds. The calf has taken half the milk of the cow—has fed on grass, and has eaten some provender (shorts and meal.) The calf was sired by a Bull of the Sandwich Breed.

The keeping of the cow, the past season, has been in a common pasture, with a small quantity of shorts and meal daily. The calf has been taken from the cow entirely, several days, at different times, for the purpose of ascertaining the quantity of milk she would give, and the following is the result:—

On the 2d day of June, 18 qts. beer measure, weighing 46 lbs.
" " 15th, " " " 18 qts. " " " 46 "
" " 26th, " " July, 14 qts. " " " 36 "
" " 6th, " " Sept. 15½ qts. " " " 39¼ "

As above stated, the calf has taken half the milk from the cow, and my family, which has consisted the past season of five grown persons and six children, have used the milk freely, as I have kept no other cow.

The following is the quantity of Butter made from her milk, after supplying her calf and my family, as above, viz:—From April 25th to September 26th, 1829, being 22 weeks, - 88 pounds.
In the month of June, were made - - 25½ pounds.

The calf, I exhibit with the cow, on account of its size and beauty.

JEREMIAH STICKNEY.

Rowley, Sept. 29, 1829.

I, the subscriber, do hereby certify, that I raised a heifer calf and kept her till she was four years old, and then sold her to Mr. Charles Tidds, of Rowley; she was of good breed, very good for milk, and brought very fine calves; one calf at four weeks old the quarters weighed 101 pounds; she had a calf at two years old.

JACOB EMERY.

West-Newbury, Sept. 30, 1829.

I hereby certify, that I purchased of Mr. Jacob Emery, of West-Newbury, a large red white faced cow, four years old, in the spring of 1825. I kept her three years, and she is now owned by Mr.

Jeremiah Stickney, of Rowley. She produced, while I owned her, remarkably large and fine calves, one of which weighed at its birth ninety-eight pounds; I kept one other cow at the same time, which was as good as cows will average, but which did not give more than half the quantity of milk and of a quality much inferior, afforded by the cow above described. The cows were both kept alike and on nothing more than common keeping. The milk of this cow was of a very rich quality.

SAMUEL C. TIDDS.

Rowley, Sept. 22, 1829.

V. EXPERIMENTS ON RAISING POTATOES.

The Committee appointed to award Premiums on Potatoes, consisting of Paul Kent, Nathaniel Felton, jr. and David Gray, have attended to that duty and Report:—

That claims were entered for the premiums offered, for the best conducted experiment in the raising of potatoes, &c.

By Jesse Putnam, of Danvers;
Daniel Burnham, of Newburyport;
Thomas Payson, of Rowley.

The committee have awarded the first premium on the subject to Jesse Putnam, - - - - - - - 15 dollars.

The second premium to Daniel Burnham, - 10 dollars.

The committee were well pleased with the accounts of these experiments, and would recommend that the same be published in connection with the Report.

The committee have awarded also the first premium of ten dollars to Mr. Daniel Burnham, for his experiment in raising potatoes from the seed of the green balls, &c.

Submitted by

PAUL KENT, *Per Order.*

November, 1829.

JESSE PUTNAM'S STATEMENT.

To the Committee of the Essex Agricultural Society on Experiments in the raising of Potatoes.

GENTLEMEN—I submit to your consideration the following account of a lot of land planted with several kinds of Potatoes in the season of 1829. The parcel of ground contained about one hundred square rods, being eleven rods in length and nine rods wide. The soil is a dark loam, naturally rocky, but now chiefly cleared of stones; and is of good quality. It was situate on the eastern side of Ingersoll's Hill, in Danvers, near the Newburyport Turnpike. The land was planted in 1828 with potatoes, and lightly manured, with manure made principally from meadow hay. In the spring of 1829, the land was twice ploughed—the first time coarse, and the second time fine—the ploughing was on an average about six inches deep. On the 23d day of May the land was planted, the rows being across the lot, nine rods long. The manure was of a coarse quality, taken from the barn cellar, made from the litter and droppings of the cattle—three fourths of the bulk appeared to be meadow hay—it was placed in the hills, and covered with the seed. The rows were furrowed four feet apart, and there were planted sixty-six hills in a row, leaving the hills about twenty-seven inches apart, on an average. Three cords of manure was put upon the land the present season. Four different kinds of seed were planted:—

1. The long red, or River La Plate Potatoes.
2. The speckled blues, a kind that has been well approved by several of our farmers, for a number of years.
3. The Richardson Whites, with small specks of blue upon them.
4. A white potatoe raised from the seed of the green Balls by myself.

Each kind were planted in three or four different ways. The manner of the planting and the produce is thus stated:—

1. *Long Red Potatoes.*

			bushels
No.	1.	2 rows—one large potatoe in a hill, yielded -	10⅛
	2.	2 rows—one large potatoe, cut in four pieces, placed in a hill, cut side up, yielded -	11¾
	3.	2 rows—one large potatoe, cut in four pieces, placed in a hill, cut side down, yielded -	11⅝

		Bushels.
	Long Red Potatoes—amount brought up -	33½
No. 4.	2 rows—middling size potatoes, two in a hill, yielded - - - - - - - - -	11⅜
16.	2 rows—one large potatoe in a hill, yielded -	10½
17.	2 rows—only 43 hills long, one large potatoe in a hill, yielded - - - - - - -	7⅜
18.	2 rows—same number of hills—middling size potatoes, three in a hill, yielded - - -	9½
22.	2 rows—same number of hills—middling size potatoes, two in a hill, yielded - - -	8½
23.	2 rows—same number of hills, only the stem end used, two pieces in a hill, yielded - -	6⅞
24.	2 rows—same number of hills—the seed end used, about one third part of the potatoe, two pieces in a hill, yielded - - - - - -	8¾
	Twenty Rows of this kind yielded - bushels	96⅜

2. *Speckled Blues.*

No. 5.	2 rows—one large potatoe in a hill, yielded -	8¾
6.	2 rows—one large potatoe, cut in four pieces, planted in the hill, yielded - - -	9⅜
7.	2 rows—two potatoes in a hill, equal to one large one, yielded - - - - - - -	9½
8.	2 rows—one large potatoe in a hill, under the dung, yielded - - - - - - -	8⅝
9.	2 rows—one potatoe, cut in four pieces, under the dung, yielded - - - - - - -	9¾
10.	2 rows—middling size, two in a hill, yielded -	8½
	Twelve rows of this kind, yielded - bushels	54½

3. *Richardson Whites.*

No. 11.	2 rows—one large potatoe, with prongs, in a hill, and only one or two prongy potatoes raised from the whole number of hills, yielded - -	6⅞
12.	2 rows—one large smooth potatoe in a hill, yielded	6¾
13.	2 rows—one large potatoe, cut in four pieces, yielded - - - - - - - -	6¼

		Bushels
	Richardson Whites—amount brought over	20⅜
No. 14.	2 rows—middling size, two in a hill, yielded -	6
15.	2 rows—middling size, three in a hill, yielded -	7⅜
	Ten rows of this kind yielded - bushels	33¾

4. *White Potatoes, raised from Seed of Green Balls.*

No. 19.	1 row—66 hills, with the eyes of one large potatoe only, planted in each hill, yielded - -	2¾
20.	1 row—66 hills, one large potatoe in a hill, yielded	3⅜
21.	2 rows—132 hills, one large potatoe cut in four pieces, planted in each hill, yielded - -	6⅜
	Four rows of this kind yielded - bushels	12½
	Whole amount - 197⅛ bushels.	

With regard to placing the potatoes *upon* or *under* the dung, I could perceive no difference in the yield. I was disappointed in finding that the cut potatoes, and middling sized potatoes, yielded better than the large potatoes that were planted whole. I could discover that the produce of the large potatoes, that were planted whole, were generally of a larger size than the others, but not so numerous, or near so valuable for the table. The pieces of the potatoes that were cut, were placed in the hills about eight inches apart. The middling sized potatoes were placed about the same distance apart. There was nearly the same quantity of Potatoes, in each kind, planted in a row. I am of the opinion, that it would have been well to have spread a part of my manure upon the land, if it had been fine enough for that purpose. And think it would have been well to have put one third part more seed on the land. I used between fourteen and fifteen bushels of seed in planting.

JESSE PUTNAM.

Danvers, Dec. 1, 1829.

Essex, ss. Dec. 28, 1829. Then Jesse Putnam made oath, that the foregoing statement by him subscribed, is to the best of his knowledge and belief, correct and true, before me,

John W. Proctor, *Justice of the Peace.*

DANIEL BURNHAM'S STATEMENT.

To the Committee of the Essex Agricultural Society, on Experiments in the raising of Pototoes.

GENTLEMEN—I offer for your inspection twelve sorts of Potatoes, the second season from the seed of the balls. As I have found no cause for amending my process of cultivation, and as I have repeated it, and you have it on record, I thought it useless to recapitulate it. No. 1, is excellent, its fair product has been a bushel, to seven hills. No. 2 is at full maturity 25th July—its quality is quite good, and for an early potatoe, is an abundant bearer.—Nos. 3, 4 and 5 are ripe from the 10th to the 25th of August—their quality is good—in no previous year have I succeeded so well in obtaining early sorts.— No. 6, is very delicate, but not prolific. No. 7 is good, and a middling bearer. No. 8 is a good bearer, but rather inferior in quality. Nos. 9, 10, 11 and 12, I should not introduce to your notice, but to comply with the requisition—I have no value for them.

Last year I gave it as my opinion, from a number of years experience, that it was useless to reserve the product of the first season, unless it bore some distinct mark of promise—this year I am fully confirmed in that opinion—I should not put by for future planting the fruit of a plant, unless the largest was at least, as large as a pigeon's egg, and not then, if the small ones were numerous. I have invariably found, that when the small ones were many, that I could not, by repeated plantings, draw them from this propensity. As there has been complaint that the seed of the balls, does not readily vegetate, perhaps it may be of some service to say that it is quite necessary, that the ground in which it is sown, should be very well pulverized—if it is not, there is danger, (the seed is so small,) that it will not come in contact with the ground, so as to vegetate. It is well to sow the seed in shoal drills, and when covered to press or roll it down. I will likewise say that this season I sowed the seed of 1823, and it appeared to take as well as the seed of the last year. I observed to the Committee the last Autumn, that with me, the fruit of the plants, inclined to take the shape, and the shade of those from which the balls were taken—I find that it does the same this season, and as the round white potatoe is the most popular, is it not best to seek the balls from the largest and best, of this shape and colour.

Will you allow me, gentlemen, respectfully, to express my surprize, that the gentlemen farmers belonging to the Society, are reconciled to the Trustees offering a premium, for these experiments, and yet that so few of them, are inclined to execute them. Although they will find, that they require care and thought, yet they would find them easy, and very interesting, and would they not, in a few years be richly rewarded, by having the community, and themselves, well supplied with a large variety of genuine seed, assimilated to the climate, and the necessity of offering premiums precluded.

Gentlemen—I further present to your notice, a small field of potatoes, consisting of 1798 hills. It is a dry declivity, of clayey loam—this is the third season it has been cultivated with potatoes. The middle of May four cords of common barn manure was ploughed into it—It was then harrowed, and holed four feet each way, from the centre of the hills—The holes were made very broad, flat, and shoal, that the seed might have an equal depth and space. The seed was cut lengthways, and two potatoes put in each hill, in four pieces, one foot apart—in placing the seed, great care was taken, that the cutsides should be uppermost, as in a previous dry year, by not attending to this circumstance, those that were put, cut side down, did not rise from the ground until near July. My design, was not the most abundant, but the most valuable crop—had it have been the former, I should have chosen the long red, or River Plate potatoe, or some other prolific bearer. I sought for those of the most superior quality, that I knew. I therefore took Nos. 1 and 2, which are four seasons from the seed of the balls, and for which your Society awarded a premium in 1827—their quality is very good, one of them, No. 1, is very superior. For the third, I chose the black potatoe, the excellences of which are, that it is a good bearer, of good quality, and retains its value through the Summer into September, better than any kind I know—it is particularly valuable for long voyages. For the fourth I took the chenango, or as it is called in Pensylvania, from whence it came, the Mercer potatoe, and where it commands near double the price, of those commonly received from the North. The form of placing the seed brought the plants in the different rows within three feet of each other. Four or five of the tall Marrowfat pea, were planted directly in the centre of each hill, from which fifteen bushels of green ones

were produced, which brought in the market 80 cents the bushel, except two or three of the last bushels, which commanded only 67 cents. I believe that more than double the common time was spent in planting—in doing which, the hoeing was so far executed that little was afterwards done, except to move the surface of the ground and keep it clear of weeds. Great caution was taken, not to raise a high hill, and to leave a bason in each, to collect and retain the rains. The promise of the field was very great, until it was checked by severe drought—soon after the rain fell, the rust seized the potatoes, and another drought soon following, urged those on the higher ground, to full and premature maturity. I have no doubt, but you will have before you, a much larger quantity from a moist field, and more extended experiments; but I have no tremors from the thought, that I shall be exceeded in the cultivation and the quality of the crop. The last year, when common potatoes were selling from 25 to 30 cents, the black, and chenango readily commanded from 45 to 50 cents. Those from the seed of the balls, I had none to part with then, nor shall I have this season, any to dispose of except for seed entirely. I have an unhesitating belief, that these sorts combine as great a degree of excellence, as can be found in this region in the same number of sorts. If this may be thought an expression too emphatic, I shall be gratified, if the movements of the day will admit of their being rightly cooked, that it may be done. If it may not be thought too stern a pressure for favor, I will add my full conviction, and that of better judges than myself, that the form of planting gave at least a quarter part more crop, than the common loose method, and that the crop is from a quarter to a third less, from the drought and rust, that the field had to encounter. It has been often repeated, that small potatoes were as prolific for seed, as the larger size. Last Autumn when I took Nos. 1 and 2 from the ground, their quality was such, as induced me to select for seed all the fair ones as large as a pigeon's egg—they were planted in distinct rows, in the midst of the others, and the result is, that the crop from them is a sixth part less, and the small ones much more numerous than from the large seed. If I shall be present at your meeting, I shall be pleased, to be closely interrogated on both my experiments.

The produce of the several kinds were as follows:

No. 1, -	4	bushels	planted,	product	57	bushels—	hills	638
No. 2, -	2	"	"	"	25½	"	"	261
Black Potatoe,	4	"	"	"	42	"	"	529
Chenango, or Mercer Potatoe	2½	"	"	"	22½	"	"	380
	12½				147			1798

I am, gentlemen, with respect, your ob't serv't,

DANIEL BURNHAM.

Newburyport, Sept. 29, 1829.

THOMAS PAYSON'S STATEMENT.

This may certify, that the subscriber planted, last May, 105 rods of ground with potatoes; the land was a sandy loam, which had been planted one year and sowed the next, in succession for upwards of one hundred years, as my ancestors have stated.

In April, I turned out the corn roots with a plough, in May, I spread about two cords of manure on the same, which was taken from my hog yard—ploughed it 16th—Planted it from the 20th to the 26th of May, with eleven bushels of potatoes, as follows; viz:—

Planted one row, 80 hills, one large red potatoe in a hill, weight 21¼ pounds, produced 370 pounds, equal to about 17½ from one.

One row, two pieces in a hill from large potatoes, weight 21¼ pounds, produced 428 pounds, equal to 19½ from one.

One row, three pieces in a hill, weight 20 pounds, produced 424 pounds, equal to 21 from one.

Planted in one row the most prongy red potatoes I could select, when gathered proved as fair and as sizeable as those in the adjoining rows.

Cut out one pound of eyes, planted 56 hills, 6 eyes in a hill, produced 120 pounds.

The above where red potatoes, imported from Belfast, Maine, last spring.

Planted one row, 80 hills, with large white potatoes, one in a hill, weight 20¾, produced 305 pounds, equal to 14½ from one.

One row, two pieces or halves in a hill, weight 20½, produced 330 pounds, equal to 16 from one.

One row, three pieces in a hill, weight 19¾ produced 288 pounds, equal to 14½ from one.

One row, four pieces in a hill, weight 23¼ pounds, produced 327 pounds, equal to 14 from one.

Planted several more rows promiscuously with large, small and cut potatoes—they produced similar to the two last mentioned rows. The seed was imported as above stated.

Planted one bushel of large white potatoes of my own raising, weight 63½ pounds, planted 206 hills, produced 13 bushels.

One bushel of very small potatoes, weight 62½, planted 420 hills, produced 26 bushels.

The other part of the field was planted with seed taken from the pile, without selection, the result was similar to that of the last mentioned bushel.

Planted eleven ounces of potatoes, produced from the seed of the potatoe balls in 1828, on forty-three hundredths of one square rod of land, when gathered weighed 75 pounds, equal to 91 bushels from one bushel of seed, allowing 63 pounds to the bushel.

THOMAS PAYSON.

Rowley, Sept. 30, 1829.

VI. DAIRY.

The Committee of the Essex Agricultural Society on the Dairy, ask leave to Report :—

That four parcels of butter were presented for their examination; only two of which came within the notice of the Committee as subjects for premium; the others not being conformable to the conditions prescribed by the Trustees, which require the whole produce of at least four cows for the 20th of May to the 30th Sept. to be exactly reported, and samples of at least twenty pounds to be exhibited at the Show.

The Committee are unanimous in the opinion, that Jesse Curtis, of Marblehead, is entitled to the Society's first premium of twenty

dollars, for the best produce of butter in proportion to the number of cows producing it, having made, from seven cows, from the 20th May to the 30th Sept. 1829, 796 lbs. 1 oz. and from the 27th March to the 20th May, 120 lbs. making a total during the present season of 916 lbs. 1 oz. and the sale of his calves from the same cows having produced him the sum of $24 56. The Cows are all of our native stock and have had no extra feeding whatever. The butter was of a superior quality and made up in pound lumps with exemplary neatness.

The Committee agree to award the second premium of fifteen dollars to Edward Toppan, of Newbury, having produced from four cows from 20th May to 1st July and five cows from 1st July to 30th September, nearly 400 lbs. of butter and 90 lbs. of two meal cheese. The cows are all of native stock. Their winter feeding was of coarse and cheap fodder until March and then until turning to pasture with the best English hay. The summer feeding was a very ordinary pasture. The butter was of good quality, and neatly done up in small printed lumps.

Two other parcels of butter were presented :

One by Sally Bradley, of Haverhill, which was of very good quality.

One by Samuel Bailey of West Newbury, packed in a wooden firkin amounting to 21 lbs. from 3½ days milk of 8 cows, which was of a good quality, though considered by your committee as too strongly salted.

Your Committee award to Sally Bradley a gratuity of three dollars ; and to Samuel Bailey a gratuity of two dollars ; and this with a view to encourage a competition in this valuable article of agricultural produce, and of inducing the farmers of this County to send to the Show specimens of their best butter.

No samples of Cheese were offered either for exhibition or premium. Your committee regret this, as they know from personal observation, that samples might have been sent from some farms in the County, which would do honor to any dairy.

All which is respectfully submitted.

JOHN ADAMS, *Chairman of the Committee.*

Haverhill, Oct. 1, 1829.

JESSE CURTIS'S STATEMENT.

To the Committee of the Essex Agricultural Society, on the Dairy.

GENTLEMEN—I subjoin hereto, agreeable to your requisitions, an account of the produce of my Dairy of seven cows during the present season, from the 27th March to 30th September, for your consideration. We confine ourselves to the making of butter, which is marketed once or twice a week in the town.

	lbs.	oz.
Butter made from 27th March 1829, to 14th May,	120	
May 21,	39	4
28,	41	
June 4,	46	
11,	54	6
18,	62	
25,	60	4
July 2,	54	
9,	47	2
16,	43	
23,	40	4
30,	37	
Aug. 6,	31	6
13,	30	4
20,	30	
27,	31	3
Sept. 3,	30	5
10,	33	9
17,	32	7
24,	19	8
28,	33	3
Total,	lbs. 916	1 oz.

The ages of my Cows are as follows :—

One is 9 years old last spring.
Two are 8 " "
One is 7 " "
One is 4 " "
Two are 3 " "

They are all of our native stock ; four of them were raised on the farm ; the other three in Middleton in this County. Their winter

keeping until March was English Hay of a medium quality: after March they had the best quality of English Hay until the 20th May when they were turned to pasture. The pasturing is as good as is to be found in the vicinity. From 20th August to middle of September they received one feeding of green corn stalks per day, and from that time to the present they have had the full feed in the mowing grounds.

From the same cows a family of six persons, two of whom are children, have used what new milk they required, and new milk has always been used to mix the bread for the family.

We have a good dairy cellar; but as we are without the advantage of ice, we pour water on the floor every day to render it cooler. The milk is kept above stairs until June; from June until October in the cellar. The milk stands before it is skimmed from four to six meals; generally six. We are careful to drain all the milk from the cream at the time it is skimmed; and the cream is hung in a well twenty-four hours before churning, which renders the butter much harder. For the greater part of the season we churn twice in a week; we use a common dash churn; and the butter usually comes in fifteen minutes.

The Committee require the amount of butter from the 20th of May to the 20th of September, which is exactly given above from seven cows. In April we had the milk of an eighth cow for one week in addition, when she was sold. It is to be added however, that one of the cows 3 years old did not come in until the 25d of April, and one 8 years old until the 13th of May. The calves of these two cows were permitted to suck until the milk was fit for use and were then raised upon skimmed milk. In addition to these two calves raised I have sold six calves from the eight cows. One without weighing, for six dollars, the other five weighing together 324 lbs. at four and a half cents per pound live weight $33 27

Total amount for six calves sold, - - -	33 27
Deduct for one calf sold, whose weight was not kept separate from the rest one sixth of the sum received, -	4 71
	$23 56

All which is respectfully submitted.

JESSE CURTIS.

Marblehead, Oct. 1, 1829.

P. S. Three of these calves were sold to the butcher on the 3d of April; two on the 19th. Their ages averaged from three to four weeks, and until sold they had all the milk they could take.

Essex, ss. Oct. 1, 1829.—Subscribed and sworn to before
JOHN W. PROCTOR, *Justice of the Peace.*

EDWARD TOPPAN'S *sr's* STATEMENT.

Account of the Produce of the Dairy of Edward Toppan, jr. of Newburyport, from May 20th to Sept. 30th, 1829.

	lbs.	oz.
From May 20th to June 1st, four cows, - -	34	12
June 1st to July 1st, four cows, - - -	104	
July 1st to August 1st, five cows, - -	98	7
August 1st to September 1st, - - -	65	
September 1st to October 1st, - -	82	6
Total amount of butter churned, -	384	9

In the months of July and August made 91 lbs. of two meal cheese.

Age of my cows: one 15 years, one 11 years, one 6 years, two 3 years old, of native breed. Their winter feeding was salt hay and fresh meadow hay and corn fodder, until about the middle of March, from that time to the 20th May, English hay, pastured in common pasture.

Mode of making Butter. The milk is kept in earthern pans up stairs, except in the hottest weather, when it is set in the cellar and permitted to stand no longer than the milk remains sweet; cream kept in a stone pot: the churning performed early in the morning, in hot weather; the butter is washed in cold water; it is then worked over three or four times, or until the butter milk is entirely extracted, which is very important. The sample exhibited is the natural color.

EDWARD TOPPAN, *sr.*

Newburyport, Oct. 15, 1829.

VII. ON MANUFACTURES.

The Committee on Domestic Manufactures have attended to the examination of the various articles exhibited for premiums, with an interest, which the importance of the subject would naturally excite. They have seen with much pleasure the gradual increase of this important part of domestic economy. They view the articles manufactured in families not merely as valuable in themselves, but as giving employment and encouraging industry and enterprize among those who without such employment would perhaps remain idle. Articles of domestic manufacture, whether designed for the various parts of clothing or intended for ornament, may be considered as much gained to the community, because they are produced without interrupting the ordinary pursuits of agriculture. Among such a variety of articles exhibited, and in some instances so much competition in the same, it may well be presumed that the committee have not in all cases come to a determination without difficulty. And although in instances they may have erred, yet they have endeavoured to exercise their best judgment.

The following is a list of most of the articles exhibited and premiums awarded by the Committee:—

28 yds. carpeting, by Sally B. Sawyer, Amesbury, 1st prem.	$5
A square list carpet 4 yds. by 3½, by Mrs. Fox, Newburyport, 2d premium	3
22½ yards of carpeting by Mrs. Frances Smiley, Haverhill.	
43¾ yds. stair carpeting, by Miss Sally Little, Newbury, prem.	3
27 yds. stair carpeting, by David Emery, Newbury.	
Grass bonnet, made from meadow grass, of very delicate manufacture, by Mrs. Rebecca Jenkins, Bradford, 1st premium	5
Palm leaf bonnet, by Phebe G. Jaques, 2d premium	3
Bonnet made of the down of milk weed, by Ann P Hale.	
Hearth rug, Mrs. Mary and Miss Sarah Smith, Danvers, 1st premium	5
Hearth rug, by Mrs. Alice Moody, Newbury, 2d premium	3
" " Ann Harris, Newbury.	
" " Abigail March.	
" " Mrs. Tafts.	
" " Miss Ann B. Sumner.	

Hearth rug, by Abiah Spafford, Andover.
2 ps. " " Mrs. Mehitable Steel, Haverhill.
" " Miss Catharine Little, Newbury.
" " Handsome, painted on velvet by Miss Catharine Breckway, Newburyport.
" " Mrs. Mary Stickney.
" " Mrs. Fox, Newburyport.
20 yds. woollen cloth, by Richard T. Jaques, Newbury, 1st premium, - - - - - - - - - - $5
A piece of woollen plaid, by Abigail Morse, Bradford, 2d prem. 3
46 yds. flannel, by Wm. Sutton, Esq. of Danvers, 26 yds. " " " " } a gratuity 5
One pair of woollen hose, by Mary Cram, Haverhill.
One pair of three threaded linen hose, by the same.
These hose were excellent, but not of sufficient number to obtain a premium.
4 yds. table linen, by Miss Lucy Duston, Haverhill.
Wrought counterpane, by Miss Elizabeth W. Swan, Methuen, 1st premium - - - - - - - - - 4
Coverlet, by Meriam Emery, of West Newbury, 2d premium 2
" Jane Smith, Haverhill.
" Mehitable Carlton, Dracut.
" Miss Lucy Duston, Haverhill.
Bedquilt, by Ann Knight, Newbury.
3 lace veils, by Miss Mary W. Emerson, Haverhill.
1 " " Miss Betsey George, Haverhill.
1 " " Mira White, Methuen.
1 " " Mary B. Bradley.
1 " " Maria Caldwell, Newbury, 1st premium - 3
1 " " Elizabeth Marshall, West Newbury.
1 " " Mary Jane Bachelor, Haverhill, 2d premium 2
1 " " Elizabeth Barbour, Newburyport.
1 " " Mary W. Hale, Newbury.
1 " " Sarah Jane Brown, Newburyport.
Thread lace cap, by Maria C. Howe, aged 8 years, Haverhill, 1st premium - - - - - - - - - 3
Thread lace cap, by Harriet Maria Hammond, aged 8 years, 2d premium - - - - - - - - - 2
One pair blankets, manufactured by Mehitable Carlton, Dracut. The committee consider these as well deserving a premium had they been manufactured within the County.

Silk watch chain, by Hannah Woodman, Haverhill, gratuity $1
Sampler, by Sarah E. Slocum, Haverhill, gratuity - - 1
Two beaver hats, by Nathan Webster, Haverhill.
Grecian pembroke work table, by Capt. Charles Short, Haverhill.
A mahogany looking glass frame, by the same.
A chaise of very elegant construction, by Brown and Davis, Haverhill.

The Committee were much pleased with, the exhibition of a quantity of Hosiery, manufactured by the Newburyport Hosiery Company. It is understood that this Society does not offer premiums for articles manufactured by Incorporated Companies. The Committee however, take great pleasure in recommending this Company to the favorable notice of the public.

The Company exhibited eighteen pair of Stockings, of nine different qualities, which the Committee consider equal if not superior to any Hosiery imported into the country.

The Committee would have been pleased had the culture of Silk, been enumerated among the articles for which premiums are awarded by the Society. They consider the culture of this article so important, that they would urge the members of the Society in the strongest terms, to awake to this important subject of national industry. It is well ascertained that every part of the United States, and particularly New-England, is well calculated for the growth of the Mulberry tree; and wherever this tree will grow there the silk worm may be reared. By a report of the late Secretary of the Treasury, it appears, that in 1825 silk of the value of more than ten millions of dollars was imported into the United States. It is stated on high authority as a fact, that five small towns in the State of Connecticut produced in one season, nearly two tons and a half of raw silk, and of the value of more than twenty thousand dollars. The town of Mansfield, in that State, containing a population of about 2500, produced 2430 lbs. of silk, while the staple of the South is cotton, rice and tobacco. May not our staple, ere long be silk; and is not the time at hand, when the culture of silk and its manufacture will be a portion of the wealth of New-England.

The Committee have been led to these remarks, from the circumstance that Mr. Enoch Boynton, of Newbury, has exhibited to the Committee a quantity of silk made by worms, reared by himself,

prepared in a manner to form a favourable comparison with foreign silk. He has devoted much attention to the subject for several years, and is annually increasing in the quantity of silk produced, as his means enable him to extend his operations. Mr. Boynton also exhibited a machine for winding silk, which is understood to be ingenious and useful in the culture of this article. He also presented the statement, annexed to this Report.

The Committee recommend a gratuity to Mr. Boynton of $5

By order of the Committee,

E. MOSELEY, *Chairman.*

ENOCH BOYNTON'S STATEMENT.

An account of a specimen of Silk, the growth of the year 1829.

Silk-worm eggs began to hatch 22d and finished hatching 27th of May, 1829.

Silk-worms began to silk 21st of June and finished silking July 9th, 1829; there were but few idle or slow spinners, and but few unhealthy, all unhealthy worms were taken away and made no use of.

On branches of the oak tree, with the green leaves on, the worms made the best silk, with the least floss; and did congregate the most among the leaves and made the fewest double balls (double balls are those in which two silk worms work together.)

The eggs which were laid on green leaves by the silk miller, and scraped off before hatching, were the best: green oak leaves and green rushes are better than paper for the silk miller to lay her eggs on, for the eggs can be separated with ease and spread on paper, and stirred about two or three times a day, which will give every part of each egg a better chance for life.

Sixteen hundred knots of raw silk, weighing 8 ounces, were drawn from 1258 silk balls (cases or coccoons) which have 83 yards in length in each knot; the balls were taken without choosing as they came to hand.

Six silk-worm threads were drawn to make one raw silk thread, making 633 yards of silk-worm thread, to each ball of the 1258 silk balls which were made into half a pound of raw silk.

Newbury, Byfield, 1829. ENOCH BOYNTON.

N. B. The best way to take hold of any art or science is to earn the leading principles, and work them out in detail by practice.

REPORT OF COMMITTEE OF THE LEGISLATURE—1829.

Report of a Committee of the Legislature, on the Culture of Silk.
JANUARY SESSION, 1829.

Your Committee are unanimous in the opinion, that it will be for the interest of this Commonwealth to extend the Grant to Agricultural Societies, made by an Act passed in the year of our Lord one thousand eight hundred and nineteen, for the further time of five years, for the encouragement of the objects named in said Act, and for the encouraging the culture of Silk. For several years past, the culture of Silk has excited a good deal of attention in different parts of our country, and great exertions have been made by patriotic individuals to bring this subject to the notice of the Agriculturalists in almost every State in the Union. The Congress of the United States, so late as the year one thousand eight hundred and twenty-five, directed its views towards this source of National wealth, and on motion of Mr. Miner, the Secretary of the Treasury was requested to prepare a manual, containing the best practical information, that could be collected on the growth and manufacture of Silk. The subject was taken up by the Secretary with the zeal and ability, which it demanded, and his letter to the Committee on Agriculture, together with the treatise of *De Huzzi*, on the culture of Silk in Germany, and on the plantation and management of Mulberry Trees, were published by order of Congress, and have been extensively circulated throughout the several States of the Union.

Your Committee refer to those works, as containing full information on this important subject.

As to the practicability of introducing the culture of Silk into this Commonwealth, your Committee are of opinion that no difficulty whatever exists. The white mulberry *(morus alba)* flourishes luxuriantly in this climate; is easily raised from seed; is not injured by our winters; and may safely be transplanted to almost any soil. The kindest soils, however, are dry, sandy or stony; these soils are preferred to low, rich and moist land. Your Committee believe that there are, on almost every farm, barren spots, rocky pastures, and uncultivated tracts, upon which this tree could be planted at a trifling expense, and would afford another means of a profitable production, to those which the farmers of the Commonwealth already possess. These trees may be planted in the most eligible situation

as standard trees, or in hedges, which latter mode is considered more convenient for gathering the leaves.

This tree continues to flourish many years. So early as the year 1492, the very year of the discovery of America, a white mulberry tree was introduced into France from Italy, by Guy Pape, of St. Auben, and was flourishing so late as 1802, more than three centuries after it was planted. Leachaux, to evince his respect for this monument of agriculture, and parent of all the white mulberry trees in France, had built a wall around it. Nor is there any thing to fear from the cold of more northern climates; for the white mulberry tree flourishes in Sweden, and also at Pekin in China, although the thermometer descends, in this latter place, almost every winter, twenty degrees below zero. It appears to your Committee that experiments have been made in the vicinity of this capital, by which it is shown, that the tender plants of the white mulberry, raised from the seed, have withstood the cold of our winters with perfect security.

The seed of the white mulberry may be easily procured to any required extent. The growth of the plant is rapid, and if suitable encouragement be given, may be multiplied and spread over the Commonwealth, so that in four or five years the means of feeding the silk worm, and of producing an abundance of silk, may be brought to the door of every farmer in the State. As the work of feeding the worms can be attended to by the domestic part of every family, without interfering in the least with the ordinary business of the farm, it is believed by your Committee, that a new and rich source of wealth may be, with little expense, created for the people of Massachusetts.

Your Committee do not feel it necessary, at this time, to go into an elaborate historical review of the introduction of the culture of silk into the different nations of Europe, nor to advert, generally, to the labours of patriotic individuals, and societies, by whose efforts this source of wealth has been introduced into France, Italy, Germany, and several of the States of this country. But your Committee will take the liberty of adverting to the course pursued in a neighbouring State in relation to this subject. The culture of silk was commenced in the State of Connecticut as early as 1760, by Mr. N. Aspinwall, who planted large nurseries of the mulberry tree in New Haven and the town of Mansfield. This patriotic individual was active in obtaining of the Legislature of Connecticut, an act,

granting a bounty for planting mulberry trees; a measure in which he was zealously seconded by the celebrated Dr. Stiles. The premium allowed by that State was ten shillings for every hundred trees which should be planted and preserved in a thrifty condition, for three years; and three pence for every ounce of raw silk which the owners of such trees should produce from cocoons of their own raising within the State. The result of this provision of the Legislature is seen at this day, in the flourishing condition of this branch of domestic economy in several towns of that State. We are informed by Mr. Rush, the Secretary of the Treasury, that three fourths of the families in Mansfield are engaged in raising silk, and are making annually, from five to fifty pounds in a family. One or two individuals have made each one hundred pounds in a season. It is believed that there are annually made in Mansfield, and the vicinity, from three to four tons.

The first step to the introduction of this culture must be the planting of mulberry trees. When these shall have arrived to a growth of four or five years, sufficient quantity of leaves will be at hand for the feeding of the worms. When a sufficiency of nutriment is thus provided, the eggs of the most approved breeds can easily be procured, either from our own country or Europe, and distributed throughout the State.

Your Committee feel it unnecessary at this time to enter into a minute detail of facts relating to this interesting subject. The most complete instruction on the management of the worms, can easily be supplied, and from the simplicity of the process may be learned even by children. The time the worm takes in completing its labours, from the egg to the perfecting of its task, is only six weeks. The care of feeding them is rather an amusement than a labour, and when it is recollected that a valuable article of commerce is immediately produced, your Committee cannot doubt that the culture is worthy the attention of this government.

ABEL WHEELER, *Per order.*

VIII. CIDER.

The Committee on the article of Cider, ask leave to Report :—

There were three samples of Cider only exhibited, none of which came within the rules of the Society in awarding premiums.

Mr. Jeremiah Stickney's cider was made out of the Commonwealth, of course not entitled to premium; besides it was refined with cider brandy, which was very perceptible to the taste.

It was fine in appearance and the taste was agreeable.

Mr. Samuel Bayley's specimen of cider had a musty taste, and was not fine in appearance, and the liquor was obtained from freezing a larger quantity.

Mr. Benjamin Greenleaf exhibited a sample of cider in bottles; the quantity he made was only two barrels in 1828. It was not racked off before bottling which was the first of March and was not fine in appearance; there was added to the cider about one quart of cider brandy to each barrel. It was made from sound fruit of various qualities—the flavour was pleasant and it has a good body.

The Committee would have been quite happy to have been presented with many samples which they could have approved of, but excuse it in part by the crop of apples being so very small the last year, but hope that in future years the farmers will be blessed with good crops and pay more attention to the manufacture of this article, it being one of the essential and staple articles of the New-England farmers.

STEPHEN BARKER, *Per order of the Committee.*

Haverhill, Oct. 1, 1829.

IX. SWINE.

The Committee appointed to award premiums for Swine, exhibited at the Cattle Show, &c. of the Essex Agricultural Society, at Haverhill, October 1, 1829, Report :—

That they have awarded to Mr. John Chase, of West Newbury, the first premium of six dollars, being for his four weaned pigs, six months old this day. The Committee regret that these were the

only swine entered for premium. There was one boar pig in one of the pens, of common quality, but the Committee were unable to ascertain the name of the owner.

For the Committee.

JACOB TOWNE, JR. *Chairman.*

Haverhill, Oct. 1, 1829.

Medal for Hon. Timothy Pickering,

LATE PRESIDENT OF THE SOCIETY.

THE Committee appointed to procure and present to the Honourable TIMOTHY PICKERING, a suitable MEDAL, with appropriate emblems, expressive of the high estimation in which the Society hold his services as President, he having sustained this office since its first organization in 1818, REPORT :—

That before they had an opportunity of executing the wishes of the Society, expressed in the above vote, the lamented death of the Hon. Mr. PICKERING had occurred. This event occasioned delay on the part of the Committee. They were of opinion however, that they should best execute the objects of the Society by completing what they had originally intended, and by presenting it to his eldest Son and Executor, the Hon. JOHN PICKERING. Having understood that our late venerable President had privately expressed an opinion, relative to such testimonials of approbation and respect, your Committee ventured to substitute a CUP for the Medal voted by the Society. The Committee transmitted the Cup to the Hon. John Pickering, of Boston, accompanied by letter, of which the following is a copy :—

Newburyport, Sept. 23, 1829.

Hon. JOHN PICKERING,

Sir—The Essex Agricultural Society, at their last annual meeting, on occasion of the resignation of their respected President, your venerated Father; after passing a vote expressive of their thanks for his "long, faithful and arduous services as President of the Society"— "*Voted*, that Messrs. Moseley, Adams and Duncan,

be a Committee to procure and present to the Honourable TIMOTHY PICKERING a suitable Medal, with appropriate emblems, expressive of the high estimation in which the Society hold his services as President." The Committee were preparing to execute this charge (substituting a Cup for the Medal, from respect to an opinion expressed by Col Pickering in relation to the form of such compliments) when his long course of active usefulness was suddenly terminated. On his lamented decease the Committee deemed that they should best fulfil the intention of the Society by presenting to you, his eldest surviving Son and Executor, the compliment designed for your respected Father :—They therefore, in behalf of the Essex Agricultural Society, present to you this Cup, and at the same time would express their respect for those talents and virtues which make you the worthy inheritor of your Father's honors.

We are, Sir, very respectfully, your obedient servants,

EBENEZER MOSELEY,
DANIEL ADAMS,
JAMES H. DUNCAN.

MR. PICKERING'S ANSWER.

To EBENEZER MOSELEY,
DANIEL ADAMS, AND
JAMES H. DUNCAN, ESQUIRES,
Committee of the Essex Agricultural Society.

BOSTON, SEPT. 28, 1829.

GENTLEMEN—I have received, with those feelings which the occasion could not but excite, the Donation on behalf of the Essex Agricultural Society, which was originally intended for my father, as their late President. Had he survived to have received it himself from his friends, and associates, who constitute that respectable body, this testimonial of their respect and of the value attached to his efforts in promoting the honourable and important objects of the Society, would have been highly grateful to him. The affectionate remembrance of myself, on this occasion by that Association of intelligent citizens, whose names will ever be honourably connected with the history of my native County, and whose partiality has now conferred on me this additional mark of the personal regard which

was so often manifested during my residence among them, again calls for my warmest and most respectful acknowledgements, which I request you to communicate to the Society.

I have the honour to be, gentlemen, with the highest regard, your obedient servant,

JOHN PICKERING.

Inscription on the Cup.

PRESENTED TO THE

HON. TIMOTHY PICKERING,

BY THE

ESSEX AGRICULTURAL SOCIETY,

IN GRATEFUL ACKNOWLEDGMENT

OF HIS IMPORTANT SERVICES AS THEIR FIRST PRESIDENT.

ELECTED.....February 16, 1818.
RESIGNED.....September 25, 1828.

Per order of the Committee,

E. MOSELEY, *Chairman*

Haverhill, Oct. 1, 1829.

PREMIUMS

OFFERED BY THE

Essex Agricultural Society in 1830.

The Trustees of the Essex Agricultural Society offer to the *Farmers of Essex*, the following list of *Premiums*, amounting to more than *six hundred dollars*, to be paid the present year, if a sufficient number of meritorious claims shall be presented.

I. MANAGEMENT OF A FARM.

For the best cultivated Farm - - thirty dollars.
For the second best - - twenty-seven dollars.
For the third best - - twenty-four dollars.
For the fourth best - - twenty-one dollars.
For the fifth best - - eighteen dollars
For the sixth best - - fifteen dollars.
For the seventh best - - - twelve dollars.

Persons, claiming these premiums, will be required to state in writing, an accurate description of their farm, specifying the quantity and quality of different kinds of soil, and the means that have been used to bring the same into their present condition ;—the proportions suitable for tillage, mowing and pasturing ;—the number of acres planted the present year, with corn, grain, or vegetables, specifying the kinds of each, and their respective products, the quantity and kind of manure used for each crop, and the times and manner of applying it ;—the number of acres mowed the present year, and the kind of grass and quality of hay thereon ;—the number of apple trees on the farm, the proportion grafted, the quantity of fruit, treatment of the trees, and the manner of making and preserving cider ;—the number and description of stock kept on the farm through the year, and the quantity of butter and cheese made, and the methods practised in making the same ;—the quantity of pork raised ;—the labour employed in carrying on the farm.

And it is expected that the claimants will state the kind of crop, if not able to state the quantity, raised on the several parcels of tillage, mowing and pasture land described in their statements, for two years next preceeding the present.

These statements must be forwarded to the Secretary of the Society on or before the last day of November, the present year.

Persons intending to claim these premiums must give notice thereof to the Secretary, on or before the first day of June next.

The Committee appointed to examine the Farms and to award these premiums, are Jesse Putnam of Danvers, Henry Colman of Salem, Joseph Kittridge of Andover, Moses Newell of West Newbury, Jeremiah Colman of Newburyport, William B. Breed of Lynn, William P. Endicott of Salem, and John W. Proctor of Danvers.

II. DAIRY.

1. For the best produce of butter, in proportion to the number of cows producing it (not less than four) made on any farm within the county, from the 20th of May to the 30th of September, in the present year, - - - - twenty dollars.

For the second best do. do. fifteen dollars.

For the third best do. do. ten dollars.

2. For the best produce of new milk cheese, in proportion to the number of cows producing it (not less than eight) made on any farm within the county, from the 20th of May to the 30th of September, in the present year, - - - fifteen dollars.

For the second best do. do. ten dollars.

For the third best do. do. five dollars.

☞A sample of the butter, of not less than twenty pounds; and a sample of the cheese, of not less than one hundred pounds; must be exhibited to the Committee and the Society on the day of the Annual Exhibition.

Each of the claimants for these premiums will be required to furnish the Committee on this subject, or the Secretary of the Society, with a statement in writing of the entire management of their dairy;—specifying the number, age, and breed of their cows;—the manner in which they have been fed through the year;—their pro-

duce each month distinctly;—the manner and times of making the butter and cheese, and the method practised of preserving and taking care of the same. These statements must be forwarded on or before the 20th of October next, verified by the oath of the claimant, or other satisfactory evidence.

III. TURNING IN GREEN CROPS AS A MANURE.

For the best experiment of turning in green crops as a manure, on not less than one acre, the experiment to be made in 1830, and a detailed account of it to be given in 1831, and forwarded to the Secretary on or before the 20th of November - twenty dollars.

For the second best - - - - ten dollars.

IV. FOREST TREES.

The premiums heretofore offered to encourage the cultivation of Forest Trees, are ordered by the Trustees to be continued for five years next ensuing, to wit:—

For the best plantation of *White Oak Trees*, raised from the seed, not less than one acre, nor less than one thousand trees, in the third year's growth, - - - - thirty dollars.

For the second best do. - - - twenty dollars.

For the third best do. - - ten dollars.

For the best plantation of *Locust Trees*, with the same conditions, - - - - - twenty dollars.

For the second best do. - - - fifteen dollars.

For the third best do. - - - ten dollars.

For the best plantation of *Larch Trees*, with the same conditions, - - - - - twenty dollars.

For the second best do. - - - fifteen dollars.

For the third best do. - - - ten dollars.

For the best plantation of *White Ash Trees*, with the same conditions, - - - - - twenty dollars.

For the second best do. - - - fifteen dollars.

For the third best do. - - - ten dollars.

For the best plantation of *Chesnut Trees*, with the same conditions, - - - - - twenty dollars.

For the second best do. - - - fifteen dollars.
For the third best do. - - - ten dollars.

☞ Claims for these premiums may be entered with the Secretary of the Society. The plantations will be examined by Ebenezer Moseley of Newburyport, Andrew Nichols of Danvers, David Cummins of Salem, Benjamin Osgood of Methuen, and John Choate of Ipswich, a special committee for this purpose, in the third year after they are planted. A statement in writing of the entire process of cultivation will be required from the claimant.

V. CULTIVATION OF WHITE MULBERRY TREES FOR THE MAKING OF SILK.

For the best nursery of white mulberry trees, raised from the seed, or from cuttings, in the second or third year of their growth, not less than one thousand in number, - twenty-five dollars.
For the second best do. do. - - twenty dollars.
For the third best do. do. - - fifteen dollars.
For the fourth best do. do. - - ten dollars.
For the fifth best do. do. - - - five dollars.

☞ See the Pamphlet of 1829, for some interesting remarks on this subject.

Claims for these premiums may be entered with the Secretary of the Society; and the Committee on Forest Trees will examine the same.

VI. IRRIGATION.

For the most satisfactory experiment for increasing the crops, upon not less than one acre of land, by irrigation, (that is turning water from its natural current so as from time to time to overflow the land) with a detailed account of the manner, expense, and benefits produced - - - - twenty dollars.

N. B. Claims for this premium must be entered with the Secretary, so that the Committee for viewing Farms may have an opportunity of examining the crops while growing. If not awarded the present year, it will be continued for the next, and so on for five years, in the hope of producing some valuable experiments on this subject.

VII. PLOUGHS AND PLOUGHING.

For the best performance in ploughing with teams of two yoke of oxen, - - - - - sixteen dollars.

For the second best do. - - - twelve dollars.

For the third best do. - - - eight dollars.

For the best performance in ploughing with teams of one yoke of oxen, without a driver, - - - twelve dollars.

For the second best do. - - - nine dollars.

For the third best do. - - six dollars.

For the best constructed plough that shall be produced at the Exhibition, - - - - - five dollars.

For the second best do. - - - three dollars.

For the best pair of working oxen at the Exhibition, eight dollars.

For the second best do. - - - five dollars.

REMARKS.

☞ Double teams will be required to plough not less than *seven* inches deep;—single teams not less than *five* inches deep;—and each one quarter of an acre of land. The work is not to be done in a hurry;—but in such a manner as the teams would work three hours together, without extraordinary fatigue. The best work, with least expense of labour, will be the test of merit—Particular regard will be had to the construction of the plough used;—as it is a primary object in offering these premiums, to introduce to common use, ploughs of the best construction.

Persons intending to be competitors for these premiums, will give notice of the same to Joseph Kittridge, of Andover, or the Secretary of the Society, on or before the Monday next previous to the day of Exhibition. Land will be procured for the accommodation of sixteen teams. If more should enter, those first entered will have the preference.—The expense of keeping teams that may travel more than ten miles for this purpose, whether successful or not in the competition, will be paid by the Society, provided it shall not exceed *two dollars* for one team.

The Ploughing Match will take place at 11 o'clock, A. M. on the day of the annual exhibition.

VIII. COMPARATIVE VALUE OF CROPS AS FOOD FOR CATLLE.

For the most satisfactory experiment upon a stock of Cattle, not less than four in number, in ascertaining the relative value of the different kinds of fodder used for the cattle, as compared with English hay, with a detailed account of the fodder used and the expense of raising the same : the experiment to be made in the three winter months - - - - - twenty dollars.

For the second best - - - fifteen dollars.

For the third best - - - ten dollars.

☞ These premiums are offered, to be paid whenever a meritorious claim is presented to the Trustees, and will be continued for five years.

IX. CIDER.

For the best barrel of Cider that shall be produced at the Exhibition in 1830, a premium of - - - ten dollars; and $5 more will be given for the cider for the use of the Society.

For the second best, a premium of - five dollars.

☞These liberal premiums are offered for cider, with the hope, that farmers will be ambitious to obtain the same. They will not be awarded unless the article offered, is of a *superior quality.* A description of the whole process of making and preserving the same, in the casks, will be required to be presented to the committee. Only one barrel will be required to be kept, until the time of the Exhibition. This will obviate the objections that have heretofore been made to the offer of these premiums, when four barrels have been required to be kept through the year.

These premiums will be continued for the next year.

X. POTATOES.

1. For the best conducted experiment in the raising of potatoes, on not less than half an acre of land, having regard to quantity and quality; a detailed statement of which is to be furnished the committee in writing - - - - - fifteen dollars.

For the second best do. do. - - - ten dollars.

2. For the best conducted experiment in the raising of Potatoes, from the seed of the apples or green balls—samples of not less than four quarts from each seed of the second year's growth, and the produce of not less than six seeds, to be produced at the Society's Exhibition in 1830 - - - - ten dollars.

For the second do. do. - - - five dollars.

☞ For some interesting instructions on this subject, see the pamphlets heretofore published by this Society; and several communications in the New England Farmer—a valuable work, that should be in the possession of every Farmer.

XI. FOR IMPROVING OUR NATIVE BREED OF CATTLE.

To the person who shall produce at the public exhibition of the Society, in either of the years 1830, or 1831, or 1832, or 1833, or 1834—any number of milch cows, not less than four, of our native breeds, showing manifest improvement therein, by an important increase in the *quantity*, and maintaining, at least, if not improving, the *good quality* of milk; the latter to be tested by the quantities of butter made in the five months next preceeding the exhibition—

For the best - - - - thirty dollars.

For the next best - - - twenty-five dollars.

For the third - - - - twenty dollars.

To the person who shall produce as aforesaid, the best pair of working oxen, or well grown and well trained steers, raised in the County, and improved on the principles hereinafter mentioned, twenty dollars.

For the second best - - - fifteen dollars.

For the third - - - - ten dollars.

To the person who shall produce as aforesaid, the best bull of our native breed, raised in the County, and improved on the same principles, - - - - - twenty dollars.

For the second best - - - fifteen dollars.

For the third - - - - ten dollars.

☞For instruction on this subject, and the particular conditions on which these premiums are offered, see the Pamphlet of 1829.

XII. IMPROVEMENT OF WET MEADOW LANDS.

For the best experiment in improving, by draining, gravelling, or otherwise, not less than one acre of wet meadow or swamp land, the experiment to have been fully tested by 1830, when the premium is to be awarded, - - - twenty dollars.

For the second best - - - ten dollars.

☞ Note. This premium will be continued from year to year, until some satisfactory experiment shall have been made.

XIII. ANIMALS TO BE PRODUCED AT THE EXHIBITION IN ANDOVER, on Thursday, September 30, 1830.

For the best bull, not less than one year old, on satisfactory assurance being given that he shall be kept for use in the County, at least 22 months from the day of exhibition, - fifteen dollars.

For the second best do. do. do. - - ten dollars.

For the third best do. do. - - - five dollars.

☞ As the object in offering these premiums is to promote improvement in our breed of stock, the Trustees have thought it proper to direct, that persons who may receive the premiums shall sign an obligation to be left with the Secretary, that they will observe the conditions on which the premiums are offered, or forfeit the same for the benefit of the Society.

For the best milch cow, not less than three nor more than ten years old, with satisfactory evidence, as to the quantity and quality of her milk, and the manner in which she had been fed, fifteen dollars.

For the second best do. do. do. - - ten dollars.

For the third best do. do. do. - - five dollars.

For the best heifer, that has been in milk, three months or more, with satisfactory evidence of the quantity and good quality of her milk - - - - - ten dollars.

For the second best do. do. do. - - five dollars.

For the best pair of three year old steers - ten dollars.

For the second best do. - - - five dollars.

For the best pair of two year old steers - five dollars.

The Trustees have thought proper to renew their premiums upon swine, and offer the following the present year:—

For the best boar - - - - five dollars.

For the second best - - - three dollars.
For the best breeding sow - - - five dollars.
For the second best - - - three dollars.
For the best litter of weaned pigs, not less than four, from two to six months old - - - - - six dollars.
For the second best - - - three dollars.

☞ The person receiving a premium for a breeding sow, will be required to obligate himself to keep the animal for this purpose, at least one year from the time of Exhibition.

No animals will be entitled to receive more than one premium. Animals that have received one premium from the Society, will not be entitled to another, unless it be of a higher order.

Should any animals of fine quality, be presented at the public show, for exhibition, they shall receive such notice from the Trustees, as by their merits they are entitled to. And should they be of extraordinary quality, such gratuities will be tendered, as may reward their owners for exhibiting them.

XIV. DOMESTIC MANUFACTURES.

For the best piece of carpeting, a yard wide, and not less than twenty yards to be exhibited, - - five dollars.
For the second best do. do. - - - three dollars.
For the best piece of stair carpeting, not less than twenty yards to be exhibited, - - - - three dollars.
For the best straw or grass bonnet, - - five dollars.
For the second best do. - - - three dollars.
For the best wrought hearth rug, having regard both to the quality of the work, and the expense of the material, three dollars.
For the second best do. - - - two dollars.
For the best piece of woollen cloth 7-8ths of a yard wide, and twenty yards in quantity, - - - five dollars.
For the second best do. - - - three dollars.
For the best piece of flannel, a yard wide, and twenty yards in quantity, - - - - - four dollars.
For the second best do. do. - - two dollars.
For the best wrought woollen hose, not less than four pair, two dollars.
For the second best do. - - - one dollar.
For the best men's half hose, not less than four pair, one dollar.

For the best silk hose, not less than three pair, two dollars.
For the best piece of linen cloth, not less than twenty yards, four dollars.
For the second best do. - - - two dollars.
For the best piece of linen diaper, not less than twenty yards, three dollars.
For the second best do. - - - two dollars.
For the best wrought counterpane, having regard to the quality and expense of the materials, - - four dollars.
For the second best do. - - - two dollars.
For the best specimen of wrought lace, - three dollars.
For the second best - - - two dollars.
For the best specimen of work, performed by a child under twelve years of age, exhibiting industry and ingenuity, three dollars.
For the second best do. - - - two dollars.

And should any other articles of domestic manufacture, be exhibited, worthy of attention, a proper notice will be taken of them, and suitable premiums awarded.

GENERAL REMARKS.

All claims for premiums, to be awarded the present year, must be entered with the Secretary of the Society, on or before 9 o'clock, A. M. of the day of Exhibition.

Articles of domestic manufacture must be at the place of Exhibition as early as 9 o'clock, A. M.; and must remain there until 3 o'clock P. M.

Premiums on animals (excepting Bulls and Milch Cows) will be confined to those raised within the County of Essex.

No animal on which a premium has heretofore been awarded by this Society, will be entitled to a second premium; except it be for an entirely distinct premium, and for qualities different from those for which the former premiums were awarded.

No animal will be entitled to have more than one premium awarded for it, at the same Exhibition.

With regard to all the subjects, for which premiums are offered, it is to be distinctly understood, that the Trustees reserve to themselves the right of judging of the *quality* of the animal or article offered;—and that no premiums will be awarded, unless the objects of them are of a decidedly *superior quality*.

By order of the Board of Trustees,

FREDERICK HOWES,
EBENEZER MOSELEY,
ANDREW NICHOLS,
WILLIAM P. ENDICOTT,
JOHN W. PROCTOR,
} *Committee.*

March, 1830.

AGRICULTURE.

Meeting of the Essex Agricultural Society, at Haverhill, October 1, 1829 :—It was proposed by Ichabod Tucker, Esq. of Salem, That the Trustees, be requested to appoint Committees, to take into consideration the following subjects connected with this institution, and to report thereon in writing, at the next Annual Meeting, viz :—

1. Manure, including the materials of which it is composed, and the best mode of applying it.
2. Forest Trees—for Timber, Fuel and Ornament, the best mode of cultivating, &c.
3. Fruit Trees—Fruit, Orchard, Nursery, preservation from the Canker Worm, the Borer, and from all insects and diseases.
4. The Garden, deserving the careful attention of every farmer, and mechanic and men of all professions.
5. The Manufacture of Silk, in connection with the cultivation of the White Mulberry Tree.
6. Irrigation and Draining Land.
7. Improving our Native Breed of Cattle, for the Dairy, for Labor, Travelling, Food, &c.—Horses, Mules, Cows, Oxen, Sheep and Swine.
8. Pasture Land, can any thing be done to restore barren pasture, which cannot be ploughed.
9. Improvement in Farming Tools.
10. Buildings and Farm-steads.
11. Division of the Farm into Garden, Tillage, Mowing, Pasture, Orchard, Wood, and Roads.
12. Fences, Live Hedge, &c.
13. Feeding Cattle, cooking Food by Steam, &c. Soiling, &c.
14. Grasses, best adapted to various soils, for Mowing and for Pasture.
15. Agricultural Chemistry.
16. Agricultural Catechism, including Interrogatives upon all branches of Rural Economy.

17. *Bees*—character, mode of treatment, what crops cultivated for them, &c.

Whereupon, it was voted by the Society, "That the communication from Ichabod Tucker, Esq. relative to the appointment of Committees, on several important subjects relating to Agriculture, with a view to preparing reports or dissertations thereon, to be communicated to the Society,—be referred to the Trustees; and that they be requested to adopt such measures in relation to the same, as will best promote the object in view."

Attest, J. W. PROCTOR, *Secretary.*

HINTS

ADDRESSED TO THE

FARMERS OF ESSEX COUNTY.

Whatever may be said of other countries and climes, the inhabitants of Essex County have no just reason to complain of the location which Providence has assigned them. Whoever traverses this County will see perhaps as few marks of poverty as in any parts of the country, which have been as long settled, and fewer than in many parts, whose settlement has been more recent. If he does not find many examples of great wealth, especially in our rural establishments, he may observe numerous indications of thrift, comfort, and substantial independence, and the reasonable rewards of enterprise, perseverance, frugality, and industry. The general aspect of the County is diversified and broken, and on that account favorable to health. On a comparison of the bills of mortality in those places, where they have been so kept that this comparison could be properly made, as in Ipswich for example with Breslaw in Europe,* a place deemed the most healthy on the continent, the result was greatly in favor of the longevity of this County. We should not know where to look for a population more respectable for its general intelligence, public order, and good morals. These are eminent blessings, and should produce grateful contentment and a rational use of our advantages.

We have no extraordinary fertility of soil; no rich alluvion; no deep intervale on the borders of the streams by which the County is watered. We have little sandy land, but a great deal of a thin, hungry, gravelly surface, and a considerable extent, in scattered parcels, of low and wet swamps abounding with peat and capable of being drained and converted into productive meadow, at an expense,

* Memoirs of American Academy, Vol. I., p 565.

if well managed, which may be fully remunerated by two or three of the first crops. Besides this, we have considerable quantities of superior land; a good soil resting upon a clay or hard pan and retentive of the manure which is put upon it. Our bogs and swamps in the interior of the County furnish abundant means of increasing our manure and enriching our uplands; and as a large part of the County is washed by the sea, the grounds in its vicinity are benefitted by the saline atmosphere; and the means of greatly increasing their fertility by muscle bed and sea-wreck are within our reach. Of these advantages many of the farmers in the neighborhood of the ocean avail themselves, and the products of some of the farms in the County, both in the interior and on the sea-board, are highly creditable to their industrious and intelligent cultivators.

We have authentic statements, by which it appears that the following amount of crops have been raised at different times in different parts of this County :—

Of Wheat—24 bushels, and 26 bushels to the acre.*

Of Indian Corn—70 bushels; 72 bushels; 71½ bushels; 90½ bushels; 93¾ bushels; 105 bushels 6 quarts; 110 bushels; 113½ bushels; 115 bushels; 117¼ bushels.†

Of Barley—50 bushels; 51½ bushels; 52 bushels and 18 qts.

Of Potatoes—518½ bushels.

Of Carrots—849 bushels; 864 bushels; and 878 bushels, at 56 lbs. per bushel; and 900 bushels.

Of Mangel Wurtzel—924 bushels; and 1340 bushels to an acre, at 56 lbs. per bushel.

Of Ruta Baga—688 bushels.

Of Beets—783 bushels.

Of English Turnips—636 bushels; 687 bushels; 672 bushels; 751 bushels; 814 bushels.

Of Onions—651 bushels.‡

We know of a lot of six acres from which thirty tons of Hay, actually weighed, were gathered in one season; and another field of about forty acres, from which, according to the statement of respect-

* The average produce of wheat and rye in Great Britain is 18 bushels to the acre. See Armstrong's Treatise on Agriculture, p. 31.

† Mr. Burnham's crop of 117¼ bushels was rated at 50 lbs. to a bushel. Messrs. Little's of 115 bushels at 56 lbs. to a bushel. Rating Messrs. Little's crop at 50 lbs. per bushel, it would be equal to 134 bushels to the acre.

‡ The above statements are to be found in the Memoirs of the Massachusetts Agricultural Society, and the Reports of the Essex Agricultural Society.

able and disinterested individuals, the yearly crops have averaged more than one hundred and twenty tons, or three tons to an acre. We can point to a small dairy establishment,* the produce of which, when all circumstances are considered, is probably not surpassed in the State, where seven of our native cows, with no extra feed whatever, have averaged a yield of 160 lbs. each of butter in a season; and another† where with high feeding five cows have produced 208 lbs. in a season to a cow.

We may likewise refer to the Salem Alms House farm, as an example of successful husbandry, which for the size of the farm, we believe is not surpassed in the country. We admit that they have every advantage both of labor and manure; but it is honorable so successfully to avail themselves of these advantages. We here subjoin an account of the last year's produce, (1829) which, as we have received it from the clerk of the establishment, may be entirely relied on; "the same being as near the quantity produced as can be ascertained, without actual weighing and measuring."

75 tons of English hay,
3 " salt hay,
600 bushels corn,
4000 " potatoes,
200 " barley,
500 " turnips,
200 " beets,
600 " onions,
100 " carrots,
50 " pease in pod,
30 " beans do.
10 tons squashes,
10 " pumpkins,
300 dozen cabbages,
200 lbs. sweet marjorum,
300 " sage,
200 " balm and other herbs,
40 " garden seeds, various sorts,
50 bushels cucumbers,
3 tons melons,

* Of Jesse Curtis of Marblehead. See Report on the Dairy for this year.

† Of Jesse Putnam of Danvers. See Report of Essex Agricultural Society for 1826.

100 bushels radishes,
Broom corn for 12 dozen brooms,
500 roots celery,
300 fowls,
11600 lbs. pork,
10 calves,
200 cords manure,
Apples, plums, peaches, cherries, &c. but few—say 10 bushels,

Stock kept on the farm,—

Oxen, average number	10
Cows " "	10
Horses	2
Bull	1
Hogs of all ages,	80

35 acres of ground were cultivated,
50 " " " mowed.

This farm contains now probably about 110 acres, several of which being ledge, are incapable of cultivation.

These statements are honorable to the County; and if, any person would see what judgment, industry, and perseverance can effect under almost every disadvantage, let them visit the farm of Ichabod Nichols, Esq. on the Salem Turnpike, a place so aptly denominated by a traveller "the abomination of desolation;" where, in the midst of rocks and bogs, upon which a man must have had the courage of a hero to look with the thoughts of subduing them, we find productive meadows, and well cultivated fields; and a milk establishment of upwards of thirty cows, alike creditable to the perseverance and productive to the pocket of its indefatigable proprietor.

The farms in the County can none of them be called large; and many of them have been subdivided to an injurious extent. If a man has a large family of children to establish, and wishes to form them to the honorable and industrious habits of an agricultural life, we advise him to emigrate into those new countries, where land is fertile and cheap; and he can form a sort of patriarchal colony around him. The homestead with us is too small to admit of farther division. If he wishes to engage largely in the raising of Live Stock, or in the cultivation of Hemp, he is promised, in the fertile alluvions of the Western States, advantages, which are not to be

found here. But if, on the other hand, it is his main object to obtain a comfortable support, and, for a man of moderate desires, a decent independence, what is an inhabitant of Essex County to gain by emigration? To say nothing of the expenses of removal and the numerous privations and hardships incident to a settlement in a new country; in point of pecuniary profit we believe that the advantage is on our side. If on the banks of the Ohio he may obtain eighty bushels of Indian corn to an acre, we may easily produce fifty. The eighty bushels, if he is so fortunate as to find a market, may bring him twenty cents per bushel, equal to sixteen dollars per acre. His fifty bushels here will ordinarily bring him seventy cents per bushel, which is thirty five dollars. Labor is nearly as dear in Ohio as it is here, though without doubt the lands are of much easier tillage. One great difference is in the expense and trouble of manuring our lands, for which there will be more than an equivalent in the increased value of the crop. Let the farmers of Essex then, according to the French proverb, "if they stand well, stand still"; and instead of complaining of the hardships of the times and the small profits of farming, let them make the best use of the means of comfort and of bettering their condition, which they possess; and look considerately on the peculiar blessings of that improved state of society in which they live, instead of being dazzled by the bright visions of more fertile soils, and abundant products without labor, which have deluded so many to their ruin.

It must be admitted that the farmers of Essex County have singular advantages from their proximity to good markets. Their produce they can easily sell for cash. Haverhill, Andover, Lowell, Amesbury, Newburyport, Salem, Marblehead, Lynn, and Boston, furnish opportunities for the disposal of our produce at as good prices as are to be obtained in any part of the country. With all this however the agriculture of Essex County is not in an improved condition. Very little is accomplished compared with what may be done. We shall refer to some prominent defects or faults in our husbandry; and with a proper respect for the judgment of those more competent than ourselves to treat this subject, we will hazard a few hints as matters of inquiry and reflection.

It must be admitted, in the first place, that there is a great want of system in our agricultural operations. Few farmers lay down any regular plan of cultivation or pursue any regular rotation of crops; but appear to be governed rather by accident, or caprice, or

hereditary custom, than by any well matured plan having in view the gradual and permanent improvement of the whole farm. We know instances in which Indian Corn has been planted in the same spot upwards of ten years in succession and potatoes nearly as long. The consequences are the gradual inpoverishment of the soil, diminished crops, and the neglect of other and valuable parts of the farm, which are doomed to the product of a sour or scanty herbage or to perpetual barrenness and neglect. It does not now remain to be proved that good husbandry requires a change and alteration of crops;* that crops of the same kind on the same land should not immediately succeed each other; that it is a wasteful husbandry, which year after year spends the manure of the farm on the same pieces of land to the neglect of other parts of the farm; and that a skilful farmer will aim by a regular course and in succession to go over the whole of his farm, which is capable of being subjected to the plough, and bring it all both arable and pasture into as good a condition as he can. The intelligent husbandman should look at his whole farm to decide what should be done; determine the quantity to be cultivated by the amount of labor and manure, which he can apply to it; and then arrange his rotation of crops so as to take up one part after another in succession, that in the end the whole shall be brought under a regular and systematic course of improvement.

We shall speak next of our improvident or unskilful management of manure. Manure is essential to successful husbandry; yet in few instances is half the amount made, which with little trouble might be made. Of what is made a large portion is wasted by exposure to the sun and rains.—We shall say nothing of the advantages of barn cellars and vaults because they are deemed expensive. But we will suggest a few simple rules, which every farmer may observe. Litter your stock with whatever of coarse fodder or refuse hay or leaves you can procure, for their comfort and your interest. The best farmer that Switzerland ever produced (Kliyogg) took care that his cattle should stand knee deep in litter.—Fill your pig styes and barn yards with litter, or mud, or loam drawn from the sides of the roads, or wherever it can be taken without injury to the

* "For more than half a century the rotation system has formed the true test of agricultural improvement in every variety of soil and climate. Whenever it has been adopted the art is found in a state of prosperous progression; whenever neglected or rejected it is either stationary or retrograde." Treatise on Agriculture, p. 81.

farm. Confine your cattle as much as possible when at home to your barn yard; and never suffer them to be in the roads; or to waste their manure at their watering places. In the morning throw the droppings of every night into a heap and cover it with a light coat of soil. It is a better plan to house your cattle every night as much in summer as in winter, unless the weather is extremely hot. In general, if the barn is well ventilated they will be as comfortable in doors as out, and in this way your manure heap will be greatly increased. Take care of the contents of your privy, and save the refuse of your sink by throwing it upon a compost heap, or making the deposite where it can easily be removed. The privy and sink on many farms are most offensive places, and are sometimes so situated that they compel one to think that their owners have scarcely made an approach to a state of civilization.* We should copy the extreme carefulness in this respect of the Chinese and the Flemish farmers, who suffer nothing to be lost. A good farmer should look upon manure of every description as money, which he may place at once at compound interest, and the payment of which is sure. There is no provision of nature, which is adapted more to strike the reflecting mind with grateful astonishment, than that by which the most offensive substances, instead of remaining to pollute the air and destroy the health and comfort of man, are converted into the means of fertilizing the earth and return to bless him in all the varied forms of beauty and utility, in flowers and fruits and the more substantial products of esculent vegetables and grain. Manures decidedly improve each other by being mixed in compost rather than applied singly. For almost all crops they are of much greater value applied green than kept over the year;† and where a farmer cannot form a cellar under his stables, he will find his account in erecting a cheap and rough shed over his manure heap to preserve it from the wind and sun and drenching rains. The expense of it when attached to the barn need not be great, and will be much more than compensated by the advantages gained by it.

* We trust we shall be excused the plainness of these hints, but they concern health, comfort, and interest. A vault walled with stone is to be preferred, but if you have not this, place under the necessary a wooden box with or without a bottom, about two and a half feet deep, and let it extend three or four feet behind the building, having a close but moveable cover; and then having a load or two of loam placed near, by throwing a few shovels full in every two or three days, you will effectually prevent the place from being offensive both within and without; and the contents may be easily removed at any time to the compost heap without disgust or inconvenience.

† See note A. at the end.

We speak next of the winter keeping of our Stock. Though there are numerous honorable exceptions, our cattle do little credit to their owners; and when spring arrives it often happens that our cows, and young stock especially, are lean, dirty, and hide-bound, and indicate pretty strongly the neglect and hardness of their masters. In many cases, if the farmer can get them through the winter alive upon salt or fresh meadow hay, he congratulates himself on having performed his duty and saved his money. But it is a false economy, and the farmer as well as his cattle are sufferers by such neglect and hard usage. We do not require of the farmer to give much English hay to his cattle, excepting to his milch cows in the spring, because it is too expensive a feed; and it is in general the principal article of produce upon which he depends for the payment of his labor and the pecuniary wants of his family. His meadow hay should be well cured and salted; at least half a bushel of salt to a load. His corn fodder, both top and bottom stalks, should be cured and saved with as much care as his English hay. So too with his barley, rye, and wheat straw. He should lay in a quantity of salt hay if his situation admits of it. To these he should by all means add a plentiful supply of vegetables; mangold wurtzel, Swedish turnips, carrots, or potatoes. The three former, when planted on ridges formed by turning a back furrow, the manure being deposited under the ridge, being once thinned carefully and afterwards cultivated by a plough or drill harrow, may be raised, taking into the account the cost of twenty-five bushels of seed potatoes to an acre, at as little expense as potatoes; and with cultivation, which will give 200 bushels of potatoes, you may ordinarily calculate upon 500 bushels of carrots, Swedish turnips, or mangold wurtzel.

An acre of carrots yielding six hundred bushels, and nine hundred have been obtained in this County, allowing to a horse three pecks per day, in which case he would require no grain and very little hay, which might be coarse hay, would be equal to the keeping of a horse for a term of two years; but as horses are ordinarily kept besides the grain which they require, a horse to be kept in good condition would need for a year more than four tons of good hay or more than eight tons for two years; now allowing one ton and one quarter of hay to an acre, which may be considered as a fair average, the produce of an acre of carrots, as far as and while it can be applied to the feeding of a horse, is equal to more than six acres of land in hay. The manure made from succulent vegetables is

doubtless preferable to that from coarse dry food; the health of the animals fed upon them is much better.

Swedish turnips are easily raised and are a valuable food for cattle. One of the most eminent farmers and breeders* in England, at a public meeting in November last, declared that after several years experience he deemed them for feeding stock superior to every other species of vegetable. Mangold Wurtzel is a more precarious crop; it does not keep so late, and is much more likely to be injured by early frosts. It is said likewise, and some instances within our own observation seem to favor the belief, that where it is given abundantly to milch cows, while it increases the quantity of milk, it tends to reduce their flesh. We have found the Swedish Turnips a nutritious and excellent root for neat cattle and sheep. Swedish turnips have been kept perfectly free from frost, even during this inclement winter, by being placed in a vacant mow and secured top and sides and bottom with a thick covering and flooring of refuse salt hay. Another advantage of this root is that it may be kept in a sound state until June. Jesse Buel, Esq. of Albany,† has raised good crops for several years by planting them on land from which the same year he had taken a crop of grass. Good crops of nearly four hundred bushels to the acre have been obtained in this County, on land broken up after mowing and planted the 18th of July. The fall however in this case was unusually favorable; and the crop would doubtless have been better, if the planting had been earlier.

We will not quit this part of our subject, without calling the attention of farmers to the value of boiled carrots as food for swine. By several accurately conducted experiments, for which he received the Agricultural Society's gold medal, Arthur Young, the distinguished English farmer, demonstrated that boiled carrots as food for rearing and fattening swine were greatly superior to boiled potatoes. If then, as we have grounds to believe from repeated experiments, 500 bushels of carrots can be raised at as little expense as 200 of potatoes, the farmer will find no difficulty in making an inference most important to his interests. We have a detailed account of these several experiments in relation to boiled carrots, but have no room for their insertion.

We remark in the next place upon a practice too common among

* The Rev. Henry Berry, British Farmer's Magazine, Nov. 1829. p. 481.

† See Note B at the end.

our farmers, and prejudicial to their interests;—we mean the practice of permitting our teams so often to lie idle. It has grown into a proverb with the English farmers, that if a farmer does not keep the plough going he will fail. To every single or double team in English farming a ploughman or driver is attached, whose sole business it is to take care of his horses and keep them always at work. In general, on farms where labor is hired, if the farmer can afford to keep a team he can afford to keep a teamster, who should be constantly employed with that team; he should no more consent to let his team lay idle day after day, than to let his hired men lay idle day after day. We should therefore plough much much more land than we do; and when the team is not otherwise occupied it should at least be employed in procuring and carting to the compost heap materials for manure; or in removing stones, or in carting gravel on to meadows, if that is deemed the best method of reclaiming them; or in other purposes, which the circumstances of the farmer may suggest. At any rate as a yoke of oxen or a horse cannot be kept but at very considerable expense, their labor should not be lost, where, as in most cases, it is possible to apply it. This can be best done by having a man, who shall be attached to a team, and whose business it shall be, except in cases of extraordinary demand for his labor in other services, to employ this team.

The gains of husbandry, even under the most successful cultivation, must be small, and in our system of farming must arise from small sales and small savings. But if the gains are small the risks are proportionably small; and if there are none of the extraordinary and splendid accumulations there are none of the painful anxieties and the extreme risks of commercial life; and men are secure from those habits of inordinate speculation in which if they do not, as is very common, in the end lose all their property they too often purchase success at the expense of all honor and principle. We have often heard it remarked by intelligent merchants in Boston, that of those engaged in trade from one cause or another more than three fourths become bankrupt or die insolvent. We have no doubt of this fact; and it ought to restrain the anxiety and morbid ambition which prevails so generally among parents, to place their children in trade and to bring them up in the expensive habits of city life. A good farm well managed will yield a fair compensation for labor; and there are no situations among us more truly independent than that of the man, who, to the advantages of a well managed farm, adds the profits of some handicraft trade, which gives

him employment in inclement weather; and during the long vacation from agricultural labors, which winter brings with it. Two great drawbacks upon the farmer's prosperity have hitherto been the use of ardent spirit and the extravagant price of labor. The former evil, is vastly diminished; and we believe that more than one half of the farms in this County will this year be managed without the use of a drop of ardent spirit; in truth, it is becoming quite disreputable to use it, and no custom can stand long against public opinion, when it is once thoroughly set against it. The price of labor is still inordinate, but this must come down. The price of labor ought to be regulated by the price of bread and clothing. Formerly wages were considered ample when a man could earn a bushel of corn or grain in two days; now he can often obtain two bushels in one day; formerly the laborer was well paid if he could earn the cloth for a shirt in three days, and now he can obtain the cloth for three shirts by the labor of one day. The price of all mechanical labor, of which the farmer must sometimes avail himself, is most exorbitant, such as that of the carpenter, the wheelwright, the blacksmith, the mason. The blacksmith charges you a dollar and a quarter or a dollar and a half for shoeing your horse, and two dollars or more for shoeing your oxen. The materials of iron and coal for the horse cost about thirty four cents, and for the oxen not twice as much, and the time employed does not exceed two hours for each animal. Other articles of the labor are equally dear. The mason charges you two dollars and sometimes two dollars and a quarter per day; that is, in a trade in which their is no mystery, for labor which is not harder than common farm labor, and where the tools cost almost nothing, he must receive enough per day to purchase more than four bushels of corn, or nine bushels of potatoes, and more then twenty yards of good cotton cloth for sheeting or shirting. We begrudge no man his honest gains; but while every effort is made to grind down the farmer to the lowest possible price for his products, we can but hope that the time will come when the price, which he himself is obliged to pay for labor, will bear a juster relation to the compensation which the community is willing to make him for his own. These, as we observed, are great draw-backs upon the farmer's success; they compel a prudent man to forego many improvements which he would otherwise make, and to husband his resources with an extreme frugality.

We inquire in the last place to what sources may a farmer look for a remuneration of his labor. The farms in the County, as we

have remarked, are small; the system pursued therefore must be adapted to this fact. The raising of stock, either neat cattle or horses or sheep, must be left to those parts of the country, where land is cheap, pasturage abundant, and hay finds no market. It is not certain however that cattle may not be fattened here to advantage, or as the butchers term it topped off or finished; that is, purchased in the autumn in good condition and sold improved in the spring; and the increase of weight and of price be a fair equivalent for the cost of provision. This will be finding the best home market for our farm produce, and the valuable manure obtained will be more than a compensation for the attendance. There is nothing so much against this system as the great profits or commissions of the butchers. The experiments of several farmers in this matter in a small way have been such as to favor rather than to discourage further trials; although the extraordinary depression in the Brighton market the last year has occasioned a serious loss to some extensive feeders in the interior.

The Essex farmer must make two inquiries for himself. The first what can he produce on his farm for the necessary consumption and support of his own family? The farming produce, which goes without waste to this account, is always disposed of to the best profit. Here by the way let us ask what is the reason that throughout the country there is not one farmer in ten, perhaps in forty, who has any thing like a good kitchen garden; the principal labor of which might be done by his own children, or domestics, and which would contribute greatly to the support, the health and the luxury of his household, by a bountiful supply of early and various vegetables and fruits. Under this head too we will suggest only one rule, which is, that he should as much as possible rely upon the produce of his farm for his support, that is live as far as possible upon its products—A good farm may be made to yield a plenty of meat, milk, butter,cheese, poultry, eggs, bread, vegetables, cider, fruit, honey, and wool;—and when a man can have all these in abundance, need he complain of want; and will he not be as comfortable and his children as healthy to be fed upon good bread and milk as upon tea, coffee, and sugar, which are such a drain upon our earnings; and ought he not to beware, above all, of the consuming moth of a butcher's bill, who must furnish over overloaded tables with meat at least three times a day; and the expense of foreign and superfine flour, instead of the substantial brown wheaten loaf or Indian bannock, with which our fathers were satisfied.

The next inquiry, which the Essex farmer should make, is what can he raise to sell?

Hay is one of the first articles, and will yield ordinarily a fair profit. We have this advantage, that there is not a town in the county, which may not find a market for its hay. The Ipswich farmers have for years found a profit in transporting vast quantities to Boston market by land in spite of the competition of the neighboring towns, and the screwed hay from Maine.

Fruit is another article for which a ready market is generally found. The produce of the orchard of one farm in West Newbury* has been equal for several years, before the two last, when the owner is suffering from the canker worm, to six or eight hundred dollars per year.

Indian Corn is the next crop which should claim the farmer's attention. This crop is the greatest blessing that ever was bestowed upon any country. It is not a more exhausting crop than potatoes or any other crop, as may be ascertained from the result on those places where it has been raised for years in succession on the same ground, with tolerable success. The cost of the seed is a mere trifle. The labor of cultivation will be greatly lessened when we learn to use the horse plough and the drill harrow more and the hoe less, and renounce the old and useless systems of hilling and half hilling—The best product has been obtained by planting it in drills from north to south, that it may have the full benefit of the sun. A successful trial, we are told, has been made the last year at the Alms House, in Haverhill, of cultivating it on a level surface without hilling at all, with a horse harrow, and not putting a hoe to it after the planting, the children of the establishment having been employed to weed among the plants. The produce of corn fodder from an acre for the feed of any neat stock, if well cured and chopped, is nearly equal to a ton of English hay. There is no crop which returns so much to the ground; potatoes return nothing where the crop is sold. The fodder from an acre of corn when the crop is good, in the opinion of Chancellor Livingston of New-York, will pay the labor of cultivation; and if the manure is furnished by the farm the grain may be considered as clear profit.

The Dairy should be the next object of an Essex farmer. All the butter and spare poultry which the County can produce may be sold as fast as it is made and reared in the several towns and villages

* Statement of William Thurlow—Essex Reports for 1828—p. 29.

which are accessible to different parts of the County. These are articles therefore for which the farmer may command ready money. By the way however we greatly object, unless it is very near, to the farmer himself going once a week to the market* where he is most likely to be tempted to waste a whole day and to incur needless expense. We recommend therefore that our farmers should do as is done in many parts of Worcester county, where some established market man goes once or twice a week to Boston and sells the produce of his neighbors in poultry, butter, eggs, &c. on a fair commission. The profits of a Dairy under the best management will not be great—but may be a fair compensation, especially if the cows are well fed in winter and succulent food is provided for them as it may easily be in summer, by the raising of corn sown for the purpose of cutting green and keeping up their milk, when the pastures fail.

The next object is the fattening of pork. We cannot in Essex County raise our pigs so cheaply as we can purchase them from New York and Vermont; but if we purchase them at a suitable age and of a good kind, why may they not be fattened here without loss and perhaps with a small gain? If there is no loss, the manure obtained and the consumption of the offal of the Dairy and farm is of great moment. We are aware that much must depend on the actual price of corn here, for on that we must mainly rely for fattening them; but this is always as low on the seaboard as it is one or two hundred miles in the interior. On this subject we do not presume to speak with confidence; but we propose it as matter of fair and accurate experiment to some of our intelligent farmers, feeling a strong persuasion, especially if boiled carrots are as beneficial as they are represented to be,† that the result will be favorable.

We shall speak of but one subject more, in which we call upon our female readers, should any such honor our remarks with a perusal, to aid in the labors of husbandry and to share likewise liberally in its profits.

The town of Mansfield, in Connecticut, produces annually, as appears by authentic statements, from forty to fifty thousand dollars worth of silk; almost the whole of which from the hatching of the worms to the reeling of the silk is the produce of female and children's labor. The expense of capital, required to begin an establishment on the Connecticut plan is, we are told, very small indeed.

* See Note C. † See Note D.

Is not Essex County as favorable as any part of Connecticut to the raising of silk; and are not our wives and daughters as intelligent and as well disposed to be useful and industrious as any? We throw out these hints on a subject, on which we do not profess to have any experimental knowledge, for their consideration.

We have extended these observations further than we had designed; at the same time we have very cursorily glanced at many subjects, upon which we might refer to numerous facts, if we had the opportunity, in proof of our remarks. We address them to an intelligent and industrious community, in hopes that they may excite to inquiry and reflection with others. We look upon the cause of agriculture as essentially that of humanity, public happiness, good morals, and religion. Whatever serves to increase the means of subsistence and comfort concerns humanity. Whatever contributes to make the country more beautiful and more bountiful, promotes both individual and public happiness. Whatever leads men to be industrious and frugal, essentially concerns their morals. Whatever increases our attachment to our homes, and strengthens our domestic affections by making our homes comfortable and happy, must make us more sensible to God's goodness. More than this, Practical Agriculture must lead a man constantly more and more to study the works of nature and to contemplate with wonder and gratitude the miracles of divine providence, which are presented to his observation in the beautiful progress of the seasons and their appropriate and various products. "Nature is God's earliest revelation" and it is full of instruction. Our Saviour bade his disciples strengthen their faith in the protecting providence of God by looking at the birds of the air and the flowers of the field. The enlightened and reflecting farmer, in surveying the products of his labor, the various operations in which he is called to perform his part, and the brute animals, who gratefully acknowledge his care and look up to him as the almoner of the divine bounty to them, will find constant and powerful incitements to think of and to honor God, the great husbandman, whose rain enriches, whose sun warms the earth; and who in his goodness has placed man in his vineyard that he may till and dress it.

NOTES.

NOTE A.

MANURE.

For the application of manures see the quotations from Arthur Young's prize essay on manures, in Memoirs of New York Board of Agriculture, Vol. II. p. 264. He gives the authority of upwards of twenty most intelligent and experimental farmers, who are decidedly in favor of applying manure in a green or unrotted state to all crops, which admit of being hoed.

"With respect to laying on manure, says Mr. Wilkes, I have experienced that dung carried from the stable yard at not more than three days old, and laid directly on the land both in summer and winter (that is in England) has an advantage of twenty per cent over that dung, which is kept from nine to twelve months."

"It has become a pretty well settled principle among good farmers (says Jesse Buel, Esq. of Albany, one of the best farmers in the country) that we should never delay applying manure because it is unfermented or unrotted; but on the contrary that they are the most profitably applied before fermentation commences, or while it is in an incipient state."—*N. Y. Memoirs, Vol. II. p.* 229.

"Our eyes and nose, without the aid of chemistry, are sufficient to inform us, that farm yard manure loses one half, if it be kept twelve months; and in proportion if it be kept a shorter time, while the season favors decomposition."—*Lorain's Husbandry, p.* 100.

"Those parts of a field to which short dung was applied gave the best crops the *first* year, but those on which the long dung had been laid, gave the best crop the *second* and *third* years; a fact which authorises the conclusion that if we wish to obtain *one* great crop the rotted dung is best; but when we look to more permanent improvement the long dung is to be preferred."—*Armstrong's Treatise, p.* 65.

"It is a common practice amongst farmers to suffer the farm yard dung to ferment till the fibrous texture of the vegetable matter is entirely broken down, and till the manure becomes perfectly cold, and so soft as to be easily cut by the spade. There are many arguments and facts which show that it is prejudicial to the interests of the farmer.

"During the violent fermentation, which is necessary for reducing farm yard manure to the state in which it is called *short muck*, not only a large quantity of fluid but likewise a gaseous matter is lost; so much so that the dung is reduced one half or two thirds in weight; and the principal elastic matter disengaged, is carbonic acid with some ammonia, and both these if retained by the moisture in the soil are capable of becoming a useful nourishment for plants."—*Sir Humphrey Davy's Lectures, p.* 269.

" Within the last seven years Mr. Coke (perhaps the greatest farmer in the world) has entirely given up the system formerly adopted on his farm of applying fermented dung; and he informs me, that his crops have been since as good as they ever were, and that his manure goes nearly twice as far."—*Ibid. p.* 272.

NOTE B.

SWEDISH TURNIPS.

Mr. Buel's experiments are fully detailed in the Memoirs of New York Agricultural Board, Vol. II. p. 249, and Vol. III. 83. Those who know the character of this gentleman know how entirely his statements may be relied on. We subjoin an extract from his second communication.—Vol. III. p. 83.

" The second experiment was upon a lay, partly of lucerne, too thin to be worth preserving, and partly of clover. The first was cut twice for green food, and the latter once for hay. The ground having been manured was ploughed and harrowed, and the seed drilled in, at the distance of three feet between the rows, the 28th June. The crop was cleared, thinned, and hoed in the usual way; and the product was between five and six hundred bushels, or about sixteen tons on the acre.

" Encouraged by this success, I this year put in two and a half acres. Being short of pasture, I fed off the clover in June, instead of cutting it for hay; manured, ploughed, and harrowed the ground. A man was employed half a day in putting in the seed with a drill-harrow. The crop was between 1300 and 1400 bushels. Some of the roots weighed between 15 and 16 lbs. each. The tops nearly equal in bulk to an ordinary crop of grass were fed to my cows in November and December, with great benefit to their milk as well as flesh. The roots were pitted in the field."

NOTE C.

MARKETS.

" The weekly attendance on markets is a great loss to small farmers, whose individual labor in many instances is an object, but whose personal superintendence must always be material. When stated as a period of relaxation, I am always ready to make great allowances; but fifty-two idle days, or the sixth part of a year, is a sacrifice, a prudent man would hesitate about. It is probable that not one farmer in twenty is aware of the sacrifice.—*Curwen's Hints, p.* 245.

Let us state the account as nearly as we can rate it.

52 days at 50 cents, - - - -	$26 00
Loss of the work of a Horse, 50 cts. per day,	26 00
Expenses, tolls, &c.—40 cents per day, -	$20 80
	$72 80

NOTE D.

FEED FOR SWINE.

From Arthur Young's Prize Essays on Rearing and Fattening Hogs.

EXPERIMENT II.

" At the same time (March, 1765) with the preceding trial, four lots of pigs, that had been weaned three months, were equally drawn from my farm-yard, five in each lot. They were confined as before, each lot to a stye, and cleaned at the same time ; their food was as follows :—

No. 1. Bran (wheat) mixt with milk.
2. Boiled Potatoes.
3. Boiled Carrots.
4. Raw Carrots.

They were kept to this food thirty days, and then viewed them as before with the same person.

No. 3. Much the best,—boiled carrots.
1. Next,—bran and skim milk.
2. Next,—boiled potatoes.
4. Worst,—raw carrots.

Boiled carrots appeared very clearly on this trial to be an admirable food for hogs of this age ;—Boiled potatoes appear also a good food, &c.

EXPERIMENT VI.

The month of December, 1766, twenty pigs, that had been weaned a month, were draughted into four parcels, and kept that month, separately in the following manner.

No. 1. Boiled carrots.
2. Boiled potatoes.
3. Boiled turnips.
4. Boiled cabbages.

At the end of the month they were turned out and viewed attentively. The result was :—

No. 1. The best,—boiled carrots.
2. Next,—boiled potatoes.
3. and 4. Equal,—all nearly dead.

Carrots continue in every trial superior to all common vegetable food. I am not at all surprised at the ill success of turnips and cabbages."

There are many other Experiments detailed, giving similar results, of which our limits forbid the insertion.

EXTRACTS

From Washington's Agricultural Notes—written in 1799.

"It is the indispensable duty of him, who is employed to overlook and conduct the operations of a Farm, to take a prospective and comprehensive view of the whole business, which is laid before him, that the several parts thereof may be so ordered and arranged, as that one sort of work may follow another sort in proper succession, and without loss of labor or time; for nothing is a greater waste of the latter, and consequently of the former, (time producing labor, and labor money,) than shifting from one thing to another before it is finished, as if chance, or the impulse of the moment, not judgment and foresight, directed the measure. It will be acknowledged, that weather and other circumstances may at times interrupt a regular course of proceedings, but if a plan is well digested before hand, they cannot interfere long, with a man who is acquainted with the nature of the business, and the crop he is to attend to."

"Every attentive and discerning person, who has the whole business of the year laid before him, and is acquainted with the nature of the work, can be at no loss to lay it out to advantage. He will know, that there are many things which can be accomplished in winter as well as in summer; others, that spring, summer and autumn only are fit for; in a word, to use the wise man's saying, that "there is a time and a season for all things," and that unless they are embraced, nothing will thrive or go on smoothly. There are many sorts of *in-doors* work, which can be executed in hail, rain, or snow, as well as in sunshine; and if they are set about in fair weather, (unless there be a necessity for it,) there will be nothing to do in foul weather; the people therefore must be idle. The man of prudence and foresight will always keep these things in view and order his work accordingly, so as to suffer no waste of time, or idleness. These observations apply with equal force to frozen ground, and to ground too wet to work in, or which if worked will be injured thereby."

"Nothing but system and method are required to accomplish any reasonable requests."

"Economy in all things is as commendable in the manager, as it is beneficial and desirable to the employer. This manifests itself,

in the taking care of the crops, that no part of the same is wasted ;— in not permitting the ploughs, harness, and other implements of husbandry, to be unnecessarily exposed, trodden under foot, run over by carts, and abused in othsr respects. More good is derived from attending to the minutiæ of a farm, than strikes people at first view ; and examining the farm yards, fences, and looking into the fields to see that nothing is there, but what is allowed to be there, is often times the means of producing more good, or at least of avoiding more evil, than can be accomplished in any other way."

" There is much more in what is called head work, that is, in the manner of conducting business, than is generally imagined. Take two managers, and give to each the same number of laborers, and let the laborers be equal in all respects. Let both these managers rise equally early, go equally late to rest, be equally active, sober, and industrious, and yet, in the course of the year, one of them, without pushing the hands under him more than the other, shall have performed infinitely more work. To what is this owing ? Why, simply to contrivance, resulting from that forethought and arrangement, which will guard against the misapplication of labor, and doing it unseasonably. In ploughing, for instance, though the field first intended for it, or in which the ploughs may actually have been at work, should from its situation, be rendered unfit (by rain or other cause) to be worked, and other spots, even though the call for them may not be so urgent, can be ploughed, this business ought to go on, because the general operation is promoted by it. So with respect to other things, and particularly carting, where nothing is more common, than, when loads are to go to a place, and others to be brought from it, though not equally necessary at the same moment, to make two trips, when one would serve. These things are only mentioned to show, that the manager, who takes a comprehensive view of this business, will throw no labor away."

The intrinsic good sense in the foregoing remarks, as well as the authority from which they come, will commend them to the favourable notice of every farmer, who is at all aware, that " Time is Money," and that he that makes the best use of the *one*, will be most likely to accumulate the *other*.

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OF THE

Essex Agricultural Society,

ELECTED OCTOBER, 1829.

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SOLOMON LOW, of Boxford,
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JAMES H. DUNCAN, of Haverhill,
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Daniel P. King, of Danvers.

The following names, have been added to the list of Members—since the last publication.

Nathan Webster, of Haverhill.
Rufus Slocum, of Haverhill.
Richard Jaques, of Newbury.
William Ives, of Salem.
Pickering Dodge, jr. of Salem.
Enoch Silsby, of Boston.